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EDUCATIONAL VALUES

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EDUCATIONAL VALUES

BY

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PREFACE

THE purpose of the present volume is stated in the Introduction, and a brief outline of the treatment is there presented. The book has grown gradually out of the early attempts of the writer to organize the methods of teaching upon a rational basis. Lacking such a basis of organization, the task of equipping candidates for educational service with the experience that the preceding generations of teachers had accumulated seemed well-nigh hopeless. Lacking such a system, also, the adequate evaluation of new methods and new tendencies could not be satisfactorily accomplished. The terminology developed in the following chapters has proved helpful to the writer in his own classroom work. It is hoped that it may prove suggestive to others, and it is for this reason that it is presented.

The time is perhaps not yet ripe for a final statement of educational functions; this must await the satisfactory development of the science of psychology, especially in the field of the higher thought-processes and in the field of the emotions. The recent investigations in these two fields, however, seem to warrant at the present time a tentative restatement of educational doctrine. The time will never be ripe for a final statement of educational values, for values vary with the varying conceptions of the end of education. But in the proposed distinction between functions and values there is indicated, it is hoped, a group of educational

problems that may, after patient and painstaking investigation, be solved once for all. These are the problems of function; and the failure to make this distinction between the problems of function which can be solved by an appeal to positive science, and the problems of value which must ever recur with the changing conceptions of educational aims, lies at the basis of much of the present confusion in our educational discussions.

All of the chapters in the present volume have undergone many changes and revisions since they were first projected. These changes have been made at the suggestion of the friends of the writer, who have been so good as to go over the material from time to time and to point out the defects. That the present treatment is still so far from adequate is not at all the fault of these men; without their kindly criticism, the writer would never have been spurred on to make the changes that now seem to him to constitute by far the most valuable portions of the book. To Mr. C. M. McConn, Registrar of the University of Illinois, and formerly Principal of the University Academy and Supervisor of Practice Teaching; Superintendent E. A. Turner of the Training Department, Illinois State Normal University; Superintendent H. B. Wilson, of Decatur, Illinois; and Professor T. H. Briggs, of the Eastern Illinois Normal School, the writer's gratitude is due for this invaluable service. He would also acknowledge his indebtedness to his colleagues, Professor S. S. Colvin, Professor L. F. Anderson, and Dr. E. L. Norton, for many valuable suggestions.

URBANA, ILLINOIS,
December 31, 1910.

TABLE OF CONTENTS

INTRODUCTION

PAGE

PURPOSE AND PLAN OF THE TREATMENT xvii

PART I

THE CONTROLS OF CONDUCT

CHAPTER I

THE INHERITED CONTROLS OF CONDUCT

1. Meaning of "conduct-control"; instinct as a control of behavior in lower organisms. 2. Complexity of human conduct conditioned by complex nervous system; hereditary and environmental forces as conditioning the two large classes of conduct-controls. 3. Inherited controls of conduct; distinction between reflex and instinctive movement. 4. Instincts in the human organisms; the adaptive instincts. 5. Relation of the adaptive instincts to education. 6. Individualistic instincts and their relation to education. 7. Sex and parental instincts and their relations to education. 8. Social instincts; educational significance of coöperation and sacrifice. 9. The important human instincts are general rather than specific in their operation. 10. Three-fold problem of education with reference to instincts: sublimation, confirmation, utilization 1

CHAPTER II

THE ACQUIRED CONTROLS OF CONDUCT

A. *Specific Habits*

1. The conservation of experience as the paramount problem of education; conduct-controls as products of experience. 2. Classi-

PAGE

fication of conduct-controls engendered by experience. 3. Habits as controls of conduct; definition of a specific habit; limitations of instinctive tendencies to form habits; law of habit-building. 4. Limitations and dangers of habit-formation. 5. Objections to the term "generalized habit"; meaning of "mental" habits 14

CHAPTER III

THE ACQUIRED CONTROLS OF CONDUCT

B. *Ideas, Meanings, Concepts, Facts, and Principles*

1. Preliminary definition of terms; ideas, etc., as intellectual controls. 2. Function of ideas in bringing past experience consciously to bear on present situations; types of ideas; illustrations. 3. "Meaning" as a "cue" to adjustment. 4. Concept as a synonym of idea and meaning. 5. An analysis of the influence of ideas in guiding conduct. 6. Facts and principles as formulations of relations existing between ideas. 7. Facts and principles function in guiding conduct as ideas function. 8. Methodology of ideas, facts, and principles; significance of the concrete. 9. The law of concept-building; limitations of the "inductive" method of teaching. 10. Distinction between development and instruction; types of school exercises important in fixing ideas, facts, and principles. 11. Controls of this group important as "guides" to conduct; distinguished from "ends" or "purposes" 26

CHAPTER IV

THE ACQUIRED CONTROLS OF CONDUCT

C. *Ideals and Emotionalized Standards*

1. Conduct fundamentally controlled, not by the stimuli from the environment, but by the needs of the organism. 2. These needs are reflected first in the instincts, later in conscious purposes. 3. Relation of purpose to instinct. 4. Contributions of experience to consciousness of purpose. 5. Operation of ideals and standards in realization of purpose. 6. Structural distinction between idea and ideal; illustrations. 7. Functional

PAGE

distinction between idea and ideal; the former a *guide* to realization of purpose, the latter an end or motive of conduct. 8. The ethical "virtues" as standards of conduct. 9. The methodology of inspiration 54

CHAPTER V

The Acquired Controls of Conduct

D. *Prejudices and Tastes.* E. *Attitudes and Perspectives. Summary*

1. Prejudices as products of the repeated functioning of ideals. 2. Tastes as related to prejudices. 3. Attitudes as the resultant of the operation of facts and principles. 4. The advantages of recognizing prejudices, tastes, and attitudes as controls of conduct; the doctrine of *Bewusstseinslagen;* the doctrine of mental attitudes. 5. Relation of prejudices and attitudes to habit. 6. Prejudices and attitudes often determined by personality of teacher and general atmosphere of school. 7. Methods of teaching are not radically modified by recognizing prejudices and attitudes as important outcomes of the educative process; the principal point of practical application is in connection with the organization of subject-matter. 8. General summary of Chapters II–V. 9. Advantages of the proposed classification of conduct-controls 64

CHAPTER VI

The Limitations of Educative Forces in Modifying Conduct

1. Capacity to depart from the customary conduct of the race in the direction of improved efficiency is one of the marks of "genius." 2. Tentative statement of the relation of education to the development of genius: (*a*) education must raise genius to the race level. 3. (*b*) Educative forces may correct an otherwise unfortunate physical or physiological condition, and so permit genius to operate. 4. (*c*) Beyond this, the appearance of genius must be attributed to the factors of organic variation; the *a priori* argument to the contrary may be met on its own ground. 5. Investigations in the field of mental inheritance support this view: (*a*) Investigations into the conditions of

PAGE

eminence (Galton, de Candolle, Odin, Cattell); (*b*) Investigations of heredity in royalty (Woods); (*c*) Studies of consanguineal resemblances in mental traits (Pearson, Galton, Thorndike). 6. Restatement of the conditions under which education can affect inherent capacity: (*a*) where environmental forces are equal, differences will be due to heredity. 7. (*b*) Where environmental forces are radically different, great differences in conduct-types result. 8. (*c*) Genius raises the race to higher levels of conduct, education supports it at these levels. 9. (*d*) While civilization is only a "veneer" of improved conduct, it constitutes the most important distinction between advanced and backward peoples. 10. (*e*) Moral traits probably more amenable to modifying influence than intellectual capacity. 11. (*f*) The relation of environmental influences to the factors of zeal, ability, and capacity for work; relation between heredity and training to be expressed as a product rather than as a sum. 12. General conclusion: power of education over conduct-controls may be increased when education clearly understands the processes that it employs. 13. Negative evidence purposely emphasized 78

PART II

THE CLASSIFICATION OF FUNCTIONS AND VALUES

CHAPTER VII

THE CRITERION OF VALUE

1. Problem of the chapter. 2. The criterion of social efficiency as the standard for measuring educational values. 3. Criticisms of the social aim of education; (*a*) its objective nature which possibly minimizes the importance of æsthetic factors. 4. Answers to this objection. 5. Reasons why social aim should hold the position of primacy. 6. Relation of intelligent choice to the primitive sanctions of pleasure and pain. 7. (*b*) Acceptance of social aim still leaves open the question, What is the aim of society? 8. Socially valuable achievement as the aim of life. 9. Acceptance of this aim does not rule out the emotions. 10. This conception provides a place in educational psychology for the ethical concept of Duty . . . 107

CHAPTER VIII

The Rubrics of Function and Value

PAGE

1. Former discussions of educational values have confused problems of function with problems of value. 2. Distinction between these two types. 3. Classification of functions. 4. Classification of values; (*a*) utilitarian values. 5. Utilitarian values represented chiefly by (1) habits of skill, and (2) facts and principles. 6. Young's distinction between direct and contingent utility. 7. (*b*) Preparatory values; their nature. 8. Illustrations of preparatory values. 9. (*c*) Conventional values; illustrations. 10. Socializing values 117

CHAPTER IX

Values to be Realized in Fulfilling the Training Functions

1. Analysis of an average day's conduct in adult life seems to show very little direct influence of formal education; this chapter proposes to examine the values of the habits fixed by school activities. 2. (*a*) Utilitarian value of habits gained from school exercises in language. 3. Utilitarian importance of training in reading. 4. The automatisms of number, and their economic importance. 5. Music and drawing from point of view of utility. 6. Manual training and economic efficiency. 7. (*b*) Preparatory value of habits; the language arts. 8. The number arts. 9. Drawing and music. 10. Manual training. 11. Preparatory value of the principal secondary subjects. 12. (*c*) The conventional value of habits. 13. (*d*) The socializing value of habits. 14. Habit-building the most important task of elementary education; dangers and sources of waste involved in habit-building 128

CHAPTER X

Values to be Realized in Fulfilling the Instructional Functions

1. (*a*) Utilitarian values of ideas, facts, and principles; from the point of view of general education, this value is small.

PAGE

2. Arithmetic as the most important instructional subject from this point of view. 3. Utilitarian value of grammatical principles. 4. Geographical facts possess slight utilitarian value. 5. The utility of historical facts; Spencer's contention; its fallacies. 6. Spencer's view of the utility of physiology; reasons why the utilitarian values of physiology are so infrequently realized. 7. Other subjects of the elementary curriculum. 8. Conclusions with regard to elementary curriculum. 9. The secondary curriculum presents a similar condition. 10. English instruction in the high schools with reference to economic efficiency. 11. Foreign-language instruction. 12. Contingent utility of secondary mathematics. 13. Why secondary science fails to realize utilitarian values; present tendencies that may correct this condition. 14. History and civics are not important from standpoint of utility. 15. Conclusions with regard to both elementary and secondary curriculums; importance of training in the art of study. 16. (*b*) Conventional value of knowledge as such admittedly slight; where such values are to be realized, the process may be justified usually upon another basis. 17. (*c*) Preparatory values of knowledge are especially important, especially in the development of concepts and meanings. 18. (*d*) The socializing value of knowledge is important in that facts and principles must form the guides for the realization of social ideals; illustrations. 19. Suggestions for enriching the curriculum from the social point of view; importance of agriculture; importance of educative materials drawn from the local environment 139

CHAPTER XI

Values to be Realized in Fulfilling Inspirational Functions

1. Chief emphasis in this and following chapters will be upon socializing values. 2. Restatement of difference between idea and ideal. 3. Importance of the emotional element in the development of ideals; the individualistic instincts as sources of emotional force. 4. The sex and parental instincts and the ideals dependent upon them. 5. The adaptive instincts as sources of ideals. 6. Ideals that are based upon the play instincts. 7. The

PAGE

instinct of imitation as the basis for ideals of construction. 8. The ideal of reverence and its instinctive basis. 9. The ideal of achievement. 10. Educative forces influence the development of ideals both directly and indirectly; the direct influence the specific theme of the present chapter. 11. History, biography, and literature as media for the transmission of ideals; illustrations from history. 12. The socializing importance of national ideals; function of history in engendering these forces. 13. Universal ideals engendered by a study of general history. 14. Sources of the emotional force necessary to render national ideals effective. 15. Literature as a source of ideals. 16. The basic themes of fiction and the drama represent fundamental instincts. 17. Ideals are crystallized in plastic art; difficulty of utilizing these as educative materials. 18. A similar condition confronts the educator in connection with music. 19. Religion as a source of ideals. 20. Instinctive forces to which religion appeals. 21. Summary. 22. Tentative list of ideals which may be directly engendered by educative forces . . 156

CHAPTER XII

Values to be Realized in Fulfilling Disciplinary Functions

1. The present status of the formal-discipline controversy. 2. Historical sketch of the controversy; James's testimony; Hinsdale's conclusions. 3. The Thorndike-Woodworth experiments. 4. Thorndike's conclusions. 5. Norsworthy's investigations. 6. The Montana experiment. 7. General conclusions from these data negative. 8. The doctrine of transfer through ideals. 9. Ruediger's confirmation of this doctrine. 10. Importance of the emotional element. 11. General evidence in favor of transfer through a conscious process: (*a*) Ebert-Meumann experiments; (*b*) Coover-Angell experiments; (*c*) Winch's experiments; (*d*) Fracker's experiments; (*e*) Ruger's experiments. 12. General conclusion. 13. Importance of the doctrine of transfer through ideals in furnishing a "cue" for educational method; illustrations. 14. Conditions under which disciplinary functions may be fulfilled. 15. Possibilities of conflict in values. 16. Illustrations of such a conflict in pure *vs.* applied science; brief for pure science. 17. Brief for

PAGE

applied science; Gilbert's experiment. 18. Solution of the antinomy. 19. The case for pure mathematics. 20. General conclusions with regard to science and mathematics. 21. The case for the ancient languages. 22. Conclusions with regard to the ancient languages. 23. A tentative list of ideals that may be engendered by fulfilling disciplinary functions . . 180

CHAPTER XIII

VALUES TO BE REALIZED IN FULFILLING RECREATIVE FUNCTIONS

1. Recreative functions may be made to realize important socializing values. 2. Justification for fulfilling recreative functions: (*a*) a pleasurable state of mind increases the availability of energy. 3. (*b*) Instinctive pleasures sometimes inconsistent with social welfare; necessity for replacing these with higher pleasures. 4. Materials that may fulfill recreative functions: literature, art, and music. 5. Why these functions are often inadequately fulfilled; (*a*) the technique of teaching has not been sufficiently differentiated as yet. 6. (*b*) Literature especially is often given an artificial difficulty in competition with other subjects. 7. (*c*) It is often assumed in practice that every pupil may be made to admire every form of art. 8. History as a source of recreative tastes. 9. Manual training and recreation. 10. Nature study and appreciation of nature. 11. Other materials of the curriculum 216

CHAPTER XIV

VALUES TO BE REALIZED IN FULFILLING INTERPRETIVE FUNCTIONS

1. Restatement of definitions of attitudes and perspectives. 2. Difference between educated and uneducated individuals in general and specialized adjustments due to differences in these factors; illustrations of the operation of attitudes. 3. "Negative" adjustment: its importance in life and its relation to general as distinguished from vocational education; illustrations. 4. Effective attitudes and perspectives free the mind from the incubus of superstition; importance of solving perplexing problems irrespective of their direct economic bearing. 5. Materials that may be made to fulfill an interpretive function; the natural

PAGE

sciences. 6. Science underlies all arts. 7. The chief function of history is interpretive. 8. The interpretive functions of literature. 9. The importance of coherent theory in holding facts together 229

CHAPTER XV

The School Environment as a Source of Educative Materials

1. Purpose of the chapter. 2. Habits and ideals the important resultants of school life as such. 3. Difficulties confronting the teacher in so organizing school life as to make it issue in valuable controls. 4. The reaction of youth against adult control and direction. 5. The high-school fraternity problem in this connection. 6. Ideals and prejudices that may come out of school life; the ideal of social conduct. 7. The ideals of self-government; difficulties and dangers of self-governing bodies of pupils. 8. The ideals of democracy. 9. The importance of "habit-likeness" in civilized society 242

INTRODUCTION

Purpose and Plan of Treatment

That education is, in the last analysis, a process of modifying conduct, is the fundamental thesis of the following discussions. These discussions have a threefold purpose. In the first place, they will attempt to classify the controls of conduct, and to describe the various ways in which educative materials may influence these controls. In the second place, they will attempt to evaluate, in terms of the social aim of education, the controls that education may furnish. In the third place, they will outline the specific methods through the operation of which educative materials may be made to fulfill the functions that are recognized as possessing value when measured by the social criterion. This last problem will be touched only incidentally in the present volume, leaving for subsequent treatment the systematic analysis of methods of organization and teaching in the light of the principles and hypotheses here developed.

The first five chapters present a classification of the controls of conduct. The inborn or inherited controls are treated briefly in Chapter I, the chief emphasis being laid upon the relation of the instincts to education. In the four subsequent chapters, the conduct-controls that result from experience are discussed in detail, with the

aim of indicating the genesis of these controls, and the general methods which education may employ to develop them. In this connection, the following factors are considered in detail: (*a*) specific habits; (*b*) ideas, concepts, meanings, facts, and principles, — generically, "knowledge," furnishing "interpolated" controls of conduct; (*c*) ideals and emotionalized standards, furnishing "final" or "ultimate" controls of conduct; (*d*) prejudices and tastes, which may be looked upon as resultants of ideals and standards; and (*e*) attitudes and perspectives, which may be looked upon as resultants of the "knowledge" group.

In Chapter VI, the limitations of educative forces in developing conduct-controls are briefly considered. In this connection, the more important investigations in the field of mental inheritance are summarized, and an attempt is made to reconcile the results of these investigations with the aims and purposes of education.

In Chapter VII, the ultimate aim of education is formulated as "social efficiency." The principal objections that have been urged against this conception are considered, and the arguments in favor of accepting social efficiency as the criterion of educational value are briefly outlined.

The two terms "function" and "value" are sharply differentiated in Chapter VIII, — the former being referred to the psychological processes through which educative materials engender conduct-controls; the latter being reserved to include the judgments regarding

the worth of the controls thus engendered when measured by the accepted criterion of value. Functions are then grouped under the following heads: (*a*) the training function, resulting in specific habits; (*b*) the instructional function, resulting in ideas, concepts, facts, and principles; (*c*) the inspirational function, resulting in ideals and emotionalized standards; (*d*) the disciplinary function, resulting in ideals of method or procedure; (*e*) the recreative function, resulting in tastes; (*f*) the interpretive function, resulting in attitudes and perspectives. The classification of values follows, in the main, the customary grouping: (*a*) the utilitarian value attaches to controls which promote simple economic efficiency; (*b*) the preparatory value attaches to controls that do not necessarily function as direct guides or ends of social or economic conduct, but which form the basis for the acquisition of controls that do so function; (*c*) the conventional value attaches to controls that possess worth only in so far as society takes it for granted that each individual shall be governed by them; (*d*) the socializing value attaches to controls that, while unnecessary from the narrow economic and conventional points of view, make possible social stability and insure social progress.

Chapters IX–XIV consider in detail the values that may be realized in fulfilling the six functions outlined above. This treatment involves a rapid survey of the elementary and secondary curriculums, and the effort is made to show how present problems of organization and method may be modified by the perspective which is

furnished by the principles of function and value. Among other problems, the present controversy concerning "formal discipline" and the transfer of training is discussed in detail (Chapter XII), and the functions of "general" education, as distinguished from specialized or vocational education, are outlined in Chapters XII, XIII, and XIV.

The life of the school as a source of educative materials is briefly treated in the concluding chapter, the chief emphasis being placed upon the valuable habits and ideals that may be made to issue from the proper type of school organization.

EDUCATIONAL VALUES

PART I

THE CONTROLS OF CONDUCT

CHAPTER I

The Inherited Controls of Conduct

1. The first problem is to make clear the meaning of the term "conduct-control" as this term is used in the following pages. Conduct or behavior implies an adjustment or response of the organism to some form of stimulation. Among the lower orders of life, this response is relatively simple. The range of adjustment is limited. A comparatively few types of behavior exhaust the possibilities. They consist in single, often unrelated, movements which follow upon the appropriate stimulation sometimes as mechanically as the ringing of an electric bell follows upon the pushing of the button. While such reactions vary with general external conditions, and with the general physiological state or "tone" of the organism, relative uniformity is their fundamental characteristic, and this relative uniformity is due to the narrow physiological and anatomical range of possible variation. It may be laid down as a general rule that, under the same physiological conditions, the same response inevitably follows upon the same stimulus.

Jennings characterizes the conduct of the lower animal forms in the following words: "What a given organism does under stimulation is limited by its action system, and within these limits is determined largely by its physiological condition at the time stimulation occurs. In the lowest organism the action system confines the variations in behavior within rather narrow limits, and the different physiological conditions distinguishable are few in number; hence the behavior is less varied than in the higher animals. But the difference is one of degree, not of kind."[1]

2. With the advance of the organism in complexity of structure, and with the organization of differentiated parts and the consequent specialization of the functions of these parts, there is an accompanying development in the complexity, organization, and specialization of conduct. Specialized sets of cells fulfill specialized functions in the economy of the animal's life. Nutrition, respiration, locomotion, and reproduction are taken care of by separate tissues, each adapted to do its own specific work, and each depending upon the others for the service which this high degree of specialization prevents it from doing for itself.

The problem of adjustment in a complex animal form becomes, therefore, highly complicated. A multitude of activities must be made to work together harmoniously for the welfare of the organism as a whole. In meeting this problem there has been developed in the more complicated animal forms a master-tissue, — the nervous

[1] H. S. Jennings: *Behavior of the Lower Organisms*, New York, 1906, p. 281.

system. This master-tissue serves not only to harmonize the activities of the various groups of cells that fulfill the different functions of respiration, nutrition, locomotion, and reproduction, but also, in the highest organisms, to retain, in some way the mechanism of which is now shrouded in mystery, the experiences that the organism has undergone in the past, to bring these experiences to bear upon the problems of present adjustment, and — in man, at least — to project adjustment into the future in time or into the distant in space and adapt the organism to situations that are not present or proximate.

3. Human behavior represents the most complicated known type of adjustment, and the nervous system that governs it is the most complicated and highly organized tissue that has, so far as is now known, been developed by natural selection. Through the nervous system operate the forces that control conduct, and while it is impossible in the present state of our knowledge accurately to describe the mechanism of control, two large factors that are of especial significance to our present problem may be readily distinguished. These are (1) heredity, and (2) experience.

In so far as both of these factors condition human conduct, — in so far as human conduct is governed in part by hereditary influences and in part by experiential influences, — we may speak of heredity and environment as the two large rubrics of "conduct-controls." Under each rubric, more specific controls are

to be identified, as the following analysis will indicate.

4. *Inherited Controls of Conduct.* — These include (1) simple reflex movements, and (2) the more complicated instinctive movements and the conscious impulses with which the latter may be correlated. The spontaneous winking of the eyes is a type of *reflex* movement, and the "control" of conduct in this instance is the tendency of a reflex nerve center to respond mechanically to a certain type of stimulation, — in this case an irritation of the sensory nerve endings in the cornea. An *instinctive* movement may be regarded as an organization of simpler reflex movements. It is, as it were, a chain of reflexes, the completion of one movement forming the stimulus for the "setting off" of the next, and so on until the chain is completed. Instinctive movements are further complicated by the fact that they are commonly for the benefit of the body as a whole, rather than for the benefit of any one particular part or organ, and also by the fact that they are frequently initiated by a conscious "impulse" and, in general, are more frequently correlated with conscious processes than are the simpler reflexes.[1] The nest-building activities of birds represent a very complex type of instinctive movement, running

[1] Cf. E. A. Kirkpatrick: *Genetic Psychology*, New York, 1909, p. 92: "Where the reaction is of a part of the organism only, it is more properly called a reflex; while more complex reactions of many parts for the good of the whole organism are designated as instincts. In the lower organisms reactions are largely reflex, while in higher animals, instincts become more and more prominent."

its course through a large number of simple reflexes until the important end has been attained. It is not probable that the bird is conscious of the end, but there is every reason to believe that conscious processes are correlated with many of the separate movements. In general, then, a group of coördinated activities controlled by inherited and not by experiential factors is called an instinctive movement, and the inherited tendency toward such movement is known as an instinct.

5. Human conduct, like that of the lower animals, is subject to these instinctive controls. It is with these that education must start, and upon these its processes must ultimately be based, no matter how far it goes or how elaborately it organizes and refines its methods. It is essential, therefore, that the student of education understand the nature of instinct and the relation of educative processes to instinctive forces.

While no type of instinctive tendency is without its relation to education, certain classes of instincts are particularly significant in this connection. Of the greatest importance, perhaps, are the *adaptive instincts*, — play, curiosity, imitation, and repetition.

The instinct of play manifests itself in the spontaneous impulse to activity of various sorts that has no end or purpose other than the mere enjoyment which this activity brings. Spencer maintained that the function of this activity was simply to provide an outlet for the "excess energy" accumulated in the system. Karl Groos, however, called attention to the fact that the purely spontaneous plays of childhood very frequently involve adjustments essential to the preservation

of life under primitive conditions. Thus among all races of people certain uniform types of play-activity are to be found, — "hide-and-seek" and other hunting games which tend to develop certain types of skill needed in hunting; "prisoner's base" and similar games of mimic warfare; playing with dolls, which gives expression to the maternal impulse. Groos's conclusion that the play impulse has developed through natural selection as a means of adapting the organism to its future environment has been a very fruitful contribution to the theory of childhood. It was one of the earliest recognitions of a principle that has done much to enlighten educational practice, — the principle, namely, that there has been provided in the adaptive instincts a "natural" basis for the educative process. [1]

Curiosity as an adaptive instinct expresses itself in the unreasoned impulse to investigate, — to determine the nature especially of what is new and strange in one's environment, — without conscious reference to the use to which the knowledge thus obtained may be put. This impulse to investigate beyond the immediate needs of the moment is obviously the basis of all knowledge and its adaptive function is clearly apparent.[2]

[1] Cf. K. Groos: *Play of Man* (tr. E. L. Baldwin), New York, 1901, pp. 361 ff.; E. A. Kirkpatrick: *Genetic Psychology*, New York, 1909, p. 100; S. H. Rowe: *Habit-Formation*, New York, 1909, p. 75. Stanley Hall (*Adolescence*, New York, 1905, vol. i, pp. 202 ff.) proposes a theory of play differing somewhat both from that of Groos and from that of Spencer. He maintains that the spontaneous play of childhood has its chief function in gratifying in a wholesome and vicarious fashion the impulses that were essential to survival at an earlier period in race history, but which are no longer significant. Their persistence, however, indicates their deeply seated character; they form, as Hall figuratively expresses it, "vestigial organs of the soul," and like certain other vestigial functions, a certain amount of activity is essential if development is to be normal. [2] Cf. Kirkpatrick, *op. cit.*, p. 102.

The instinct of imitation manifests itself in the unreasoned impulse to copy the adjustments that are made by others when there is no consciousness of the purpose of adjustment: merely copying the movement is sufficient to gratify the impulse. It is clear, however, that an instinct of this sort is particularly important in developing the types of conduct that are important in civilized life. Without the imitative impulse, the task of education, especially in its earlier stages, would be difficult in the extreme, — if not, indeed, insurmountable. [1]

Closely related to the imitative impulse is the impulse to what Baldwin terms the "circular reaction." In this case, the individual, instead of copying the adjustments of another, repeats or copies some adjustment that he has made himself (either accidentally or through imitation). This repetition of a reaction is clearly seen in children from the ninth month on, becoming, of course, less and less frequent in its occurrence as useful adjustments are made habitual. It is to be noted that the individual is not necessarily conscious of the purpose of the repetition. The mere pleasure that it affords gives it a sufficient sanction. The adaptive function of this important impulse is clearly apparent. It is the instinctive basis for what is termed in formal education, "drill" or training.

6. The recognition of the adaptive instincts and an understanding of the many ways in which they contribute to the solution of the problem of education have been among the most important of the recent advances in educational science. Like all important discoveries, they have undoubtedly led to extreme practices. While

[1] The importance of the instinct of imitation was first clearly pointed out by J. M. Baldwin (*Mental Development: Methods and Processes*, New York, 1906, pp. 249 ff.) and by G. Tarde: *The Laws of Imitation* (tr. Elsie C. Parsons), New York, 1903, ch. i; cf. also Kirkpatrick, *op. cit.*, p. 101.

nature has provided adaptive instincts that will, in a certain measure, automatically educate the child, — that is, lead him to acquire the experiences that are essential to life in civilized society, — it should not be forgotten that this automatic education has very decided limitations and that an educational system depending upon these entirely is not likely to carry the individual very far. Curiosity, play, imitation, and the spontaneous repetitive impulse may very well serve, one may say, as the starting point of an educative process that very soon carries the individual beyond these unreasoned impulses into the realm of purposeful action. While the instincts form the basis of education, they are, after all, only the basis.

Curiously enough, the repetitive impulse has not been recognized in educational practice as a sanction for a certain type drill that is essential to the acquisition of skill in a number of fundamental adjustments. It is sometimes said that a child should never be subjected to drill processes for which he can see no reason. A familiar precept, based upon this principle, is the warning against requiring pupils to mechanize rules and formulæ that they do not understand. While this precept is, in general, a safe guide to educational practice, it may easily be carried too far, and an extreme generalization of its implications is obviously quite contradicted by nature's own method of insuring the formation of necessary habits.

On the other hand, a sole dependence upon the repetitive impulse to form the necessary habits would be quite futile. So far as natural selection has fixed this impulse, it seems to be narrowly limited to the more obvious adjustments absolutely essential to social life. Thus, through instinctive repetition,

the child masters the mechanism of speech, but only in a comparatively crude way. For many of the arts and automatisms that the more highly developed social life requires, the limited repetition that this impulse would provide is quite inadequate. In other words, the pleasant affective tone which has, through natural selection, come to attach to certain types of repetition during a certain period of childhood, fails to attach itself to the longer and more tedious series of repetitions essential to the formation of the more complicated habits. It is the failure to recognize this limitation that constitutes the fallacious element in the doctrines of the neo-Rousselian school of "natural education."

7. Of the *individualistic* instincts, — the unreasoned tendencies to such adjustment as will tend to preserve the organism in conflict with his fellows, — the instinct of emulation is probably most significant to education.

The limits within which the emulative impulse may be encouraged and consequently confirmed in educational practice have long been the subject of controversy. Of the strength of this impulse among normal individuals there can be no doubt, and all teachers will testify to its efficiency as the source of what is perhaps the most powerful school incentive — rivalry. Theoretically, the danger of employing it extensively lies in the self-centered ideals which it may engender. Since all ideals have an emotional and consequently instinctive basis, it is necessary to inquire seriously whether the employment of any instinctive impulse in the work of education may not, in the end, do more harm than good by developing a conduct-control that is quite inconsistent with the fundamental aim of education. This problem must be left to a later section for detailed consideration.

8. The *sex and parental instincts* are of more vital import to education than is commonly recognized. These impulses form the basis of the prime controls of human conduct from adolescence on. How to develop from these impulses the ideals that must be developed if education is to fulfill its function in social life is a problem that must also be left for further treatment in the discussion of ideals.

The investigations in the field of "psycho-analysis" indicate very clearly that the sex-instincts are vastly more fundamental and important, even in the life of children, than education has hitherto recognized. It is, as yet, too early to predict what modifications of present-day educational practices will be made necessary by researches in this new field; but every indication points to some discoveries in the near future that will compel the educator to take very serious account, not only of the awakened sex impulses of the adolescent but also of the premonitions of sex-consciousness that are normal with very young children.[1]

9. The *social instincts*, — the unreasoned tendencies to seek companionship, to coöperate, and to sacrifice oneself for the welfare of the group, — are so late in their development, and so intricately interwoven with experiential factors, that their instinctive basis is often

[1] "According to the findings of psycho-analysis, the sexual life of children is much richer, both physically and mentally, than is generally believed, and . . . the manner of its development is of decisive importance for the whole life-history of the individual." — E. JONES: "Psycho-Analysis and Education," *Journal of Educational Psychology*, vol. i, 1910, p. 504. Cf., also, S. Freud: *Selected Papers on Hysteria* (tr. A. A. Brill), New York, 1909, ch. ix.

quite obscured. So far as education is concerned, it is perhaps sufficient to recognize that there is an inborn tendency that makes toward coöperation and sacrifice. It is very doubtful, however, whether this tendency can be depended upon to insure the elaborately organized altruistic adjustments that a complicated social structure necessitates. In other words, natural selection has provided, as usual, only for such adjustments as are essential to bring the race to a plane upon which the consciousness of purpose may function effectively in providing more highly specialized controls much more adequately adapted to the needs of a constantly changing social environment.

10. In general, the instincts of man may be characterized as conduct-controls which are general rather than specialized or particularized in their function. Highly specialized instinctive movements (such as the nest-building instinct in birds) would be a decided disadvantage in the human species. The characteristic feature of human life is its adaptability, and any high degree of specialization in the tendencies to conduct that are transmitted as instincts through the germ cell would stand squarely in the road of human progress.

The general acceptance of the doctrine of the non-inheritance of modifications through the germ cell has occasioned a pessimistic outlook among some students of society. If the improved adjustments that each generation toilsomely acquires are not transmitted through the germ cell; if the race is not growing better through the experience of each succeed-

ing generation; if each child must start on the same physical and physiological plane that its ancestors of three thousand years ago started on; then what is progress or civilization but a mere veneer which may be scraped off completely if a single generation fails in its paramount duty of training and educating its offspring?

Whether human progress is or is not a mere veneer, it is true that the failure of social heredity to transmit its worthy elements would serve to eliminate every trace of civilization within a very brief period. But far from being depressed by this condition, one should take from it the largest measure of comfort. The fixation of habit in instinct would simply mean the inevitable perpetuation of inadequate habits. How far the customs and skills of to-day are removed from those of a century ago is frequently remarked. Certainly some of the elements that have been lost were well worth preserving; but, on the whole, man may be thankful that he is not required to carry about in his nervous system a multitude of specialized tendencies acquired by his ancestors in response to some remote environmental need, but totally unadapted to present conditions. It is quite enough of a burden for him to have embedded in his nervous system a few instincts, the utility of which has been outlived. These were provided by natural selection in some period far antedating human history, but, like the vermiform appendix, they are only a source of trouble and vexation to-day. If the habit-modifications acquired by each of one's ancestors were similarly reflected in one's nature, how hopeless would be the problem of adaptation!

11. The task of education with reference to the instincts is threefold: (1) Certain instinctive controls must be "sublimated"; that is, the energy that they release must be directed to ends other than those indi-

cated by the primitive instincts themselves. The few but troublesome unsocial or anti-social impulses are in this class, — the impulse to appropriate what pleases one; the impulse to inflict bodily injury upon those against whom the feeling of resentment has been aroused; the impulse to follow the strongest external stimulus regardless of its bearing upon the remote ends that one seeks to attain; the impulse to seek change and variety; and, in the ever-lengthening period that elapses between physiological and economic maturity, the imperious sex and parental instincts.

(2) In the second place, certain instincts must be confirmed and given the sanction of repeated experience. Chief among these are the comparatively weak instincts of coöperation and sacrifice.

(3) Finally, certain instincts form the basis of incentives or natural interests which may be directed toward the acquisition of controls that may be quite unrelated to the instincts employed as means. Among these are the instinct of emulation, the "property" instinct, and especially the adaptive instincts, — play, curiosity, imitation, and repetition.

CHAPTER II

The Acquired Controls of Conduct. (*A*) Specific Habits

1. The power to rise above the operation of blind instinct, and to control conduct in the light of experience and conscious purpose, is the most significant human prerogative. It is the prime task of education to see to it that the useful modifications of conduct that have been accumulated with the experience of the race are transmitted safely from generation to generation. Physical heredity, so far as is now known, cannot transmit these modifications through the germ cell. As was pointed out in the last chapter, the physical inheritance of modifications would doubtless prove a disadvantage rather than a benefit to man. The shortcomings of physical heredity in this regard place a correspondingly heavy responsibility upon social heredity, and in social heredity, formal education is the important factor.

The paramount problem of education becomes, therefore, the *conservation of experience;* and the materials of education are the controls of conduct which represent the resultants of that experience. Of these controls, not all are worthy of perpetuation. Changing conditions bring changed needs and demand new adjustments.

Thus the task of selecting for survival the essential elements of experience is one of the most troublesome constructive problems of the educator. Subsequent chapters will attempt to lay down certain principles that may serve as a guide in this selection; but, as a preliminary to this discussion, it will first be necessary to define and classify the conduct-controls that come out of experience, and which constitute the materials with which education has to deal.

2. The following outline will indicate at a glance the various rubrics of classification that will be followed in the subsequent discussions: —

I. Acquired automatic controls of conduct.
   (*a*) Specific habits.
II. Acquired conscious controls of conduct in which the sensory or intellectual element predominates.
   (*a*) Ideas, concepts, meanings.
   (*b*) Facts and principles.
III. Acquired conscious controls of conduct in which the affective or emotional element predominates.
   (*a*) Ideals.
   (*b*) Emotionalized standards.
IV. Acquired controls of conduct which evince some of the characteristics of habits, while still retaining many features characteristic of the conscious controls.
   (*a*) Those in which the affective or emotional element predominates: tastes; prejudices.
   (*b*) Those in which the sensory or intellectual element predominates: attitudes; perspectives.

3. *Habits as Controls of Conduct.* The most obvious resultant of experience is the group of specific habits

that control so large a part of human conduct. A specific habit is a mode of response that has been acquired through experience, and has then, through repetition, been reduced to an automatic form. This does not necessarily mean that the response thereafter is unconscious. One may be thoroughly aware of an automatic adjustment. The significant characteristic of a specific habit lies in the fact that the various elements making up the response follow upon one another automatically. The stimulus to the response may or may not come into consciousness; but if, at any point of the series, hesitation occurs and consciousness is called upon to direct the movement, or to choose between alternate possibilities of action, the response, at that point at least, loses its automatic character, and becomes a matter of judgment, — in other words, comes under the guidance of ideas.

The automatic spelling of a word illustrates the salient features of a specific habit. So long as the writing of the word follows immediately upon the stimulus (in this instance the idea of the word, or its auditory perception in case it is dictated), the response is automatic. Should doubt arise as to the proper sequence of letters, however, the *form* becomes focalized in attention, and the automatic character of the writing is lost. Consciousness is now called upon to direct the process.

The making of a chain by a blacksmith may illustrate another type of habit. Here a large number of related movements must first be coördinated or related to one another by imitation or instruction. At this stage the process is con-

trolled by judgment; there are infinite possibilities of movement, from which the apprentice must consciously select those that are effective. Gradually successive phases of the process become automatic; the simpler adjustments follow upon one another without conscious control. As practice proceeds, these segments of automatic responses gradually merge into larger automatic wholes, until finally perhaps only a fleeting "awareness" of certain "cues" (the hue of the metal when it is ready for bending and welding; the "feel" of the hammer-blow that indicates cold and unyielding iron; the perception of form that means one more link completed) is all that consciousness need concern itself with.

4. As was suggested in the last chapter, habits may be initiated by imitation, and carried to the plane of automatism by the instinctive delight in rhythmic repetition. But, as was also suggested, the instinctive basis for habit-forming will not carry the individual very far, for it will not provide for the complicated forms of adjustment and for the consequent multiplication of repetitions essential to their automatic functioning. The individual here as elsewhere must rise above instinct if he is to achieve a significant measure of progress. It is at this point that the conscious direction of the educative process becomes absolutely essential.

The law of habit building becomes, therefore, the basis of a large and important part of formal education. This law consists of three articles: (*a*) *Focalization*[1] of consciousness upon the process to be made

[1] It is true that fortunate variations in an adjustment may come about without the intervention of consciousness, but the building of these

automatic; (*b*) *attentive repetition* of this process; (*c*) *permitting no exceptions* until automatism results. These three articles should be supplemented in practice by a recognition of the beneficial influence which a proper *motivation* or *initiation* may exert upon all stages of the habit-forming process.

The implications of this fundamental principle have been so thoroughly worked out by Dr. S. H. Rowe [1] that they need not detain us long at this point. In general, a habit may be focalized either by demonstration (that is, by giving the individual who is to form the habit a clear-cut example of the way in which the adjustments are to be made), by trial and error and chance success (placing the individual face to face with a situation to which he must adjust himself in various ways until he "stumbles upon" the appropriate response), or by judgment (placing the individual in contact with the situation but letting him "reason out" the appropriate adjustment rather than blunder into it blindly). Each one of these three methods has its advantages and its special fields of effective application.

In securing attentive repetition, it is essential that the "practice" essential to automatism should be under conditions that will prevent the distraction of attention through the

variations into useful habits is largely a matter of focalized recognition. Cf. the following from Ruger's report of his investigations in the psychology of efficiency (*Archives of Psychology*, No. 15, June, 1910, pp. 14 f.): "It has been maintained by some that variations in method are most effective when they are not attended to, when they come and also build themselves into habits 'unconsciously' or 'marginally' rather than 'consciously' or 'focally.' The results of the puzzle experiments are in accord with this view so far as the coming of variations is concerned, but not as to the subsequent relations, the employment of the variations."

[1] Cf. *Habit-Building and the Science of Teaching*, New York, 1909, chs. vii, viii, ix, and x.

almost inevitable monotony of the task. Inattentive repetition before the correct adjustments have become automatic places a premium upon inadequate habits because of the exceptions that are certain to occur. This is one reason why practice should, so far as possible, be effectively motivated, — that is, the individual undergoing the discipline should have, if possible, a strong incentive for making perfect responses. Short periods of practice and the provision of devices that introduce a superficial variety while preserving the fundamental uniformity of the adjustment are also important in this phase of habit-building.

The prevention of exceptions should be the result of the attentive repetition. The disadvantage of permitting exceptions lies in the probability that they may undo the work of the preceding repetitions as well as initiate inadequate habits.

Initiative may be insured in a variety of ways. Ambition to acquire skill, hope of rewards and fear of penalties, a desire to produce some material product, competition and rivalry, delight in group and rhythmic activity (as in military drill, dancing, singing, etc.), — each of these may be used under appropriate conditions. In complex processes of habit-formation, it will be necessary to employ several types of incentives and motives, — now one will be most effective, now another. It may be laid down as a general rule that the incentive should be related as closely as possible to the field in which the habit is to function later. It is fairly well established that specific habits function readily only in situations in which they have been developed, or in the situations closely similar. But the similarity of one situation to another depends largely upon subjective factors. Consequently, the motives and incentives employed in the formation of habits may determine in large measure the efficiency with which these habits operate in later life.

5. Rousseau looked with suspicion upon habit-building as a phase of education. He would have Émile form but one habit, — and that the habit of forming no habits whatsoever. This extreme view could not, of course, be defended in the light of what we now know concerning the control of human conduct. Habit stands to man as instinct stands to the lower animals; and the youth who reaches maturity without having made a multitude of useful responses thoroughly automatic will be poorly adjusted to the conditions of social life. And yet, like many extreme statements, Rousseau's dictum contains its germ of truth, — its warning against the dangers that lie in the opposite extreme. Habit-building is a laborious and time-consuming process, and whenever the educator prescribes that a habit or a set of habits is to be formed by all children, there should be sound reason back of his prescription. The task of selecting the habits that are essential is one of the heaviest burdens laid upon the educational administrator. Not to form the essential habits during the plastic period is to commit an irremediable blunder; to form useless habits is not only to consume valuable time and energy, but also to load the individual with automatic responses, the very fixity of which may be his undoing.

What habits should be formed at various stages of the educative process will be considered in another section. It is sufficient here to note certain principles that will underlie the choice. Specific habits may be con-

veniently grouped into two classes; (1) habits of skill, and (2) habits of manner.

Habits of skill are typically represented by the handicrafts, such as wood working, metal working, and weaving, and by certain processes involved in the arts of husbandry, seamanship, trade, and the like. The more complicated types of skill represented by these arts are the products of a long period of evolution through which the experiences of successive generations have been accumulated and sifted. Consequently the problem of their transmission from generation to generation is of paramount importance to the welfare of the race. Many of these habits of skill, like other specialized forms of response, were developed under the stress of conditions that no longer prevail, and have thus lost their usefulness. Machinery has rendered it possible for a once important group of skill-habits, like those employed in manipulating the hand loom, to lapse. Society no longer requires its members to be proficient in a large number of handicrafts.

The advocates of manual training have made extensive use of this fact as an argument for reinstating in the school some of the arts that machinery has rendered unnecessary. The argument does not always discriminate between the learning of a useless art and the indirect training-products that are assumed to come from its mastery. It is unquestioned that practicing arts now useless may give the child a clearer understanding of the industrial processes, and a keener appreciation of what science and invention in the field of mechanics have accomplished for the human race. How much of this sort of training should be given is a matter of dispute, but it seems clearly evident that a high degree of skill is not essential to these ends. Beyond this, however, there are certain types of skill that are important enough to-day to warrant the expenditure of some time and attention in their mastery.

The ability to use tools efficiently in the fashioning of useful articles from both wood and metal would be of direct utilitarian value to almost every individual living under present conditions.

Habits in these fields, however, are not of so much concern to general (as distinguished from technical) education, as are the more general habits of skill that must be acquired by every individual. In this class, the habits of speech, of written language, and of computation are easily the most significant to the social life.

Habits of manner, or customs, are distinguished from habits of skill only by partaking more of the conventional, and less of the utilitarian, nature. Educationally they are particularly important, because they crystallize the social ideals of the race. The amenities of social conduct have, like the arts and skills, been developed through a long period of evolution. As with habits of skill, there is constant danger of losing these amenities through a failure of the educative process to inculcate them faithfully in each generation. So long, of course, as they are well represented in the social life, informal education, working largely through imitation, will guarantee their survival. But when, through changing conditions, customs and amenities of manner that are unquestionably of fundamental social value are gradually relaxed, it becomes the paramount duty of formal education to insure their perpetuation. Formal education has also a function in generalizing throughout society the social amenities that have developed in certain groups or classes; provided, of course, that these are worthy of generalization. Thus the habits of courtesy and gentle manners, the habits of hospitality and of regard for the feelings of others, — which were originally limited to the leisure classes, — may, through formal education, be extended to all classes of society; and this must be done in a democracy if democracy is to "level up," rather than to "level down"; where all are of the "nobility," *noblesse oblige* must be universal.

6. Thus far the term "habit" has been used to refer exclusively to specific motor responses that have been acquired through experience, and reduced to the plane of automatic functioning through repetition. The word "habit" has been employed too loosely in the literature of educational psychology. The line has not been drawn sharply between modes of response that are unquestionably of this specific character and other conduct-controls that are related in one way or another to habit as thus conceived, but which must not be confused with this simple type. The term "general habit" or "generalized habit" has sometimes been used to denote a conduct-control that seems to the writer both important enough in itself, and sufficiently different from simple habit, to deserve a distinctive name. Confusion has also resulted from differentiating between "mental" and "physical" habits, or between "habits of thought" and "habits of action."

In the following pages, the term "habit" will be employed with reference to any acquired mode of response, the separate ingredients of which (the component simpler responses) have at one time or another been coördinated or associated through conscious control, but in which the connections are, in the completed habit, quite mechanical. This will, of course, include fixed associations of ideas in so far as these associations are between motor responses which are symbols of the ideas. Thus the formula, "Six sevens, forty-two," is a specific habit. The association between the symbols "six sevens" and

"forty-two" has become mechanical through repetition. "Forty-two" is the *motor* response to the stimulus "six sevens."

As will be seen in the sequel, it is difficult to draw fundamental distinctions between habits and ideas. The bond that associates image and meaning is to be looked upon as a type of habit. On the other hand, it is fatal from the point of view of educational practice not to make a distinction. The methodology of fixing habits in the process of education is quite different from the methodology of implanting ideas. Experience that is to function unerringly as habit must be acquired differently from experience that is to function adaptively in thought and judgment. The chief implications of this distinction must be left for the following chapter.

In place of the term "generalized habit" which has given rise to so much difficulty in educational psychology, the writer will use certain terms, the meanings of which will be developed in a subsequent section. These terms are "prejudices," "attitudes," "perspectives," and "tastes." That the conduct-controls denoted by these various terms have marked relations with the simpler habits just discussed, the following chapters should abundantly prove; that they should not be confused with simple habits should also be clearly apparent. In general, the basis of these conduct-controls that are so closely related to habit is the "propensity" which any automatic form of response tends to develop. A propensity is primarily an affective or emotional phenomenon. It expresses itself typically in a feeling of

discontent or irritation when, for any reason, a stimulus that normally gives rise to an automatic response fails to evoke that response. As Stout expresses it, "Every interruption to our routine way of doing things is felt as a disturbance or annoyance." [1]

[1] G. F. Stout: *Analytic Psychology*, London, 1896, vol. i, p. 259. See also, Rowe, *op. cit.*, p. 35; B. R. Andrews: "Habit," *American Journal of Psychology*, vol. xiv, 1903, p. 137.

CHAPTER III

The Acquired Controls of Conduct. (*B*) Ideas, Meanings, Concepts, Facts, and Principles

1. It was pointed out in the preceding chapter that experience may influence conduct through the specific habits that are formed by repetition of the same reaction. These habits come gradually to control the customary and unvarying adjustments of life. When new situations arise, however, the specific habits already formed are frequently inadequate, and a new synthesis is required; that is, adjustments already mastered must be put together in a new way. This process of solving new problems or new situations in the light of former experience may be termed the process of judgment, and it is in this process that the controls of conduct to be discussed in the present chapter have their function.

This distinction between habit and judgment may be illustrated by any act of attention in normal adult life. If, for example, I am in the habit of taking a certain street car at a certain time every day, there is very little conscious direction of my conduct in so far as this specific adjustment is concerned. Attention may well occupy itself with other matters, leaving to habit the direction of my steps to the street corner, the hailing of the car, the mounting of the steps, and all of the other concatenated adjustments that, taken together, enable me to

reach my destination. But if, on reaching the corner, my car fails to appear at the usual time, and if I learn from a passer-by that an accident around the next corner has "tied up" all the traffic, a new situation is presented to which I must attend, and toward the solution of which I must now collect and arrange my "ideas," — my "knowledge" of other possible means of reaching my destination. In other words, I immediately begin to "think" how I am to solve the problem, — and this "thinking" involves the recall of "ideas," "meanings," "concepts," "facts," or "principles," which we term, generically, knowledge.

2. But what is the nature of these conduct-controls that may come to one's assistance when the specific habits that one has formed are inadequate, and how do they differ, both in their nature and in their method of operation, from specific habits? To answer these questions in a satisfactory degree of completeness would involve far more space than can here be given to the task. It will be possible, however, to indicate some of the chief characteristics of these important controls, as well as some of the more striking differences between "ideas" and "habits."

It should be said at the outset that the three terms, "idea," "meaning," and "concept," are virtually synonymous as they are used in the following discussions, and that facts and principles are statements or formulations of the relations that exist between different ideas or meanings or concepts. It should also be said that these five words may be conveniently designated by the generic term "knowledge." In general, they represent

the conduct-controls that owe their importance to the fidelity with which they mirror to consciousness the conditions of the environment, and the relation of these conditions to the life of the organism as determined by its experience. It is in this respect that they are to be differentiated from the controls to be discussed in the following chapter. They may be looked upon as "guides" to conduct; and they are to be differentiated sharply from "ideals" and "standards," which are "ends" of conduct. In other words, the controls that are here designated by the generic term "knowledge" are predominantly intellectual in their nature, while the controls that are discussed under the head of ideals and standards are predominantly emotional in their nature.

3. For the sake of initial clearness, the following definitions, couched in the terminology of contemporary psychology, are suggested.

A perception is a group of elemental, irreducible, conscious processes called sensations. Thus when one "perceives" an orange, the "consciousness" of the object is made up of visual sensations (the sensation of yellow, for example, against a background of some other color or shade which enables consciousness to distinguish the form or outline) *plus* certain sensations originating in the eye muscles which enable the outline and contour to be imaged upon the retinæ of the eyes. Touching or grasping the orange may add to these elements the sensations of pressure and temperature, and the movement-sensations (kinæsthetic sensations) involved in touching and grasping. Sensations of taste and smell may also coöperate in the perception of the object. These various sensory de-

tails combine to inform consciousness of the object; and, inasmuch as these are the data of which consciousness is chiefly aware, they may be termed the *focal* constituents of the perception; that is, they occupy the center or focus of the conscious field. But, in addition to these sensations which occupy the focus of the conscious field, and which are aroused by the immediate stimulation of various sense organs (the retinæ of the eyes, the sensory nerve-endings in the muscles and tendons, the pressure and temperature sense-organs of the skin, etc.), there is something in the awareness of the orange that comes out of past experience. An infant, who had never had experience with oranges, might have the same *sensations* from the object, but his perception would be quite different from that of the adult.

In other words, practically every perception of adult life is a complex of (1) sensations immediately evoked by external stimuli, and (2) sensations that are revived from past experiences. These two types of sensations fuse together to form what is technically called an "assimilation." A "pure" perception, — a perception that does not involve elements of past perceptions, — is obviously an extremely rare occurrence in mental life after the earliest years of infancy.

Now the term "idea" is used in a generic sense to indicate the contributions that past experience makes to one's present consciousness. In an assimilation, for example, the *ideational* elements (coming from past experience) are to be distinguished from the *perceptual* elements (coming from immediate sensory stimulation). One may easily verify this from one's own experience: in correcting proof, for example, the unpracticed proof reader is actually "aware" of letters and perhaps even of words that a later, more careful scrutiny fails to find upon the printed sheet; that is, past experience has supplied the words or letters that *ought* to be there, and the reader actually *sees* them, so far as his own

awareness is concerned; the same phenomenon is clearly apparent in other sensory "illusions."

But while the word "idea" is used in this generic sense to indicate all possible appearances of past experience in present consciousness, it is used more specifically to designate a *revived or recalled perception.* One speaks of one's *idea* of an orange when the object is *represented* to consciousness but not *presented* to the peripheral organs of sensation. It is in this connection, especially, that the word will be employed in the following discussions.

The most important contribution that past experience makes to present perception, however, is what is termed *meaning.* It was said above that one's awareness of an object is chiefly centered upon certain focal ingredients of the perception which can readily be identified with elementary sensations. But an untutored mind (like that of the young child or the savage) might have the same sensory ingredients, — the same *focal* ingredients, — as the mind of a civilized adult; and yet the quality of the perception in the two cases would be quite different. It is this difference that constitutes for consciousness a difference of meaning, and this difference is a resultant of past experience. When the perception is revived as an idea, it is clear that this difference still persists; indeed, in the idea, meaning is the most important factor.

Now, what is it over and above the focal sensations that constitutes this awareness of meaning? This is one of the perplexing problems of present-day psychology. Some authorities[1] simply designate it as a "feeling of meaning"

[1] For example, E. L. Thorndike: *Elements of Psychology,* New York, 1905, p. 65: "Sensations, percepts, images, and emotions are direct feelings of things, qualities, and conditions. The feeling appears to *be* the thing. But we can feel or refer to a thing without directly feeling *it.*" Also p. 6: "These feelings of *meaning* are very important in all higher sorts of thinking."

and attempt no further analysis. This simplifies the problem, but it does not inform us regarding the genesis and development of these important attributes; such information might conceivably be furnished if these "feelings of meaning" were analyzed into their elements. The same criticism could be made of the theories of meaning that definitely assume this factor to be an unanalyzable element of consciousness, coördinate in every respect with the elements that are termed sensations.[1] The present disposition of certain German psychologists to identify the awarenesses of meaning as one of the various types of "attitudinal consciousness" or "conscious attitudes"[2] aids somewhat, for the term "attitude" suggests a mode of genesis which may aid educational psychology in tracing the development of meanings, — one of its most important tasks.

So far as educational psychology is concerned, however, the most promising theory of meaning is that which explains it in terms of sensation. This explanation is typically represented by Titchener's statement: "An idea means another idea, is psychologically another idea, if it is that idea's context.

[1] Cf. R. S. Woodworth: "Imageless Thought," *Journal of Philosophy, Psychology, and Scientific Methods*, vol. iii, 1906, pp. 701 ff., especially pp. 705 f.: "I would suggest that, in addition to sensorial elements, thought contains elements which are wholly irreducible to sensory terms. Each such element is *sui generis*, being nothing else than the particular feeling of the thought in question. Each is a quality, as red and sweet are qualities; not syntheses of sensory qualities, but simply and purely the qualities of particular thoughts. . . . There is a specific and unanalyzable conscious quale for every individual and general notion, for every judgment and supposition. These qualities recur in the same sense as red and green recur."

[2] The *Bewusstseinslagen* of the German investigators of the thought-psychology; the term was first used by A. Mayer and J. Orth: "Zur qualitativen Untersuchung der Association," *Zeitschrift für Psychologie*, vol. xxvi, 1901, p. 6.

And I understand by context simply the mental process or complex of mental processes which accrues to the original idea through the situation in which the organism finds itself, — primitively the natural situation; later, either the natural or the mental."[1] This statement implies that there is nothing in the awareness of meaning that cannot be attributed to the sensations that are either aroused by immediate stimuli or revived from past experiences. If this is extended to include the marginal "halo" of kinæsthetic (muscular and strain) sensations, which may be supposed to surround a perception, and *to represent the various types of adjustment or reaction* which the object perceived normally initiates, there is suggested a working hypothesis for the development of meanings in education; for the problem is now definitely to insure the development of meanings through adjustment to typical situations, — a procedure which finds much to commend it in the results of actual school practice.[2]

[1] E. B. Titchener: *Experimental Psychology of the Thought Processes*, New York, 1909, p. 175.

[2] This explanation of meaning was advanced in the writer's "Apperception of the Spoken Sentence," *American Journal of Psychology*, vol. xii, pp. 80 ff., and elaborated with reference to its educational applications in *The Educative Process*, chs. iv–vi. Cf. especially, p. 145: " . . . the marginal 'halo' or fringe of relations, which 'carries the meaning,' and in which the kinæsthetic sensations, representing as they do the constant factors in experience, occupy a prominent place." That these marginal constituents may fulfill this function is recognized by C. O. Taylor ("Ueber das Verstehen von Worten und Sätzen," *Zeitschrift für Psychologie*, vol. xl, 1905, p. 248 *n.*), although he maintains that his observers did not discover these contents; this is not at all surprising, for, by hypothesis, they are marginal and consequently obscure. Titchener (*op. cit.*, p. 176) admits the importance of the kinæsthetic factor in primitive experience, but doubts its primacy in the more advanced types of thinking: "Meaning is, originally, kinæsthesis; the organism faces the situation by some bodily attitude, and the characteristic sensations which the attitude involves give meaning to the process that stands at the con-

Whatever theory may be called upon to explain these awarenesses of meaning, it is obvious that meanings are products of experience. If the perceptions that mirror to mind the conditions of the environment are "meaningful," it is because repeated adjustments to these conditions have endowed with significance the bare sensations which report to consciousness the happenings of the objective world. As a tentative working hypothesis, we may look upon perceptions and ideas as *images* (the focal constituents, made up primarily of sense-materials) *plus a "halo" of kinæsthetic and other organic sensations* which constitute, so far as consciousness is concerned, the meanings which these focal constituents hold for the organism. Thus the orange that we perceive is made known to us by means of certain sensations; these sensations occupy the focus of consciousness; but surrounding them, enveloping them, is a mass of marginal sensations, which have been derived from past experience, and which cause the focal sensations to form a unified perception. All of the possible uses to which an orange may be put, — all of the relations that it may possess, — are, in so far as such uses and relations have come within the range of one's experience, represented in this conscious margin. Its meaning as food, as a commodity of commerce, as a means of table decoration, — each is there *implicitly, potentially;* and there is needed only the selective activity of a purpose, or a situation, to make this implicit meaning explicit. Thus in the breakfast situation, the "food" meaning may be made explicit, and the focal ingredients of the perception may "set off" the food-adjustment; at the fruit store, the meaning of the orange as a commodity of commerce may become explicit; and so on.

scious focus, are psychologically the meaning of that process. Afterwards, when differentiation has taken place, context may be mainly a matter of sensations of the special senses, or of images, or of kinæsthetic or other organic sensations as the situation demands."

Meaning may be defined, then, as the marginal "halo" of possible "cues" to conduct surrounding every well-developed perception or idea and endowing it with its essential and unique quality as an idea; and since meaning is, upon our assumption, made up of revived sensations (mainly kinæsthetic) and is consequently "ideational" in its character, and since it is obviously the most important factor in ideas, we may speak of "idea" and "meaning" as, for all practical purposes, synonymous terms. When, in education, we aim to develop ideas, we are aiming primarily to develop meanings; and when we aim to develop meanings, we are attempting to associate with the sensations and sensation-compounds aroused by external stimuli the appropriate adjustment to these stimuli; we are attempting to associate with the objects and forces of the external world the appropriate adjustment of the human organism to these objects and forces. Once these associations are thoroughly fixed (and it is clear that they may be most effectively fixed by actual reaction or adjustment to them), the revived perceptions (or ideas) will carry with them these various possibilities of adjustment, and consequently the ideas may later be used in "thought" problems as condensed representatives of the former experiences, — the meaning that is made explicit in any case depending upon the nature of the problem. Beyond this, the original sense-materials constituting the focal constituents of the perception may, when the ideas are used in thought-problems, be replaced by a symbol such as a word, a sign, a diagram, and the like. But the effective use of symbols demands that the "halo of meaning," which would ordinarily attach to the image or the perception, now attach to the symbol. So long as this meaning is there, the essential conditions have been fulfilled. In actual adjustment to real objective situations, we need focal sensations mirroring with precision the relations of the forces and objects that constitute the situations; in thought-situations, the

barest trace of focal sense-material may be sufficient to "carry the meaning" effectively. In other words, when we "think" about our problems, the meaning of the symbols that we employ is primarily important; when we are using perceptual data as a guide to immediate adjustment, it is the perceptual data that are important, — we are really gathering new meaning around the perceptual data, through the adjustment that we are making.[1]

A *concept*, for our purposes, is simply a meaning.[2] It may be either general or particular in its reference, — it is, in any case, ultimately a "cue" to adjustment, or better a bundle of possible "cues" to adjustment, the particular cue to be acted upon being determined by the situation or the problem. Thus my concept "water" is simply the center of a vast number of possibilities of conduct, — drinking, bathing, swimming, drowning, pouring, rowing, sailing, looking at, admiring, etc.

A *fact* is the statement of a relation between a particular concept and a general concept; for example, "This rock is granite"; or between two or more particular concepts, "The chair is behind the table." A *principle* is the statement of a relation between general concepts: "Granite is an igneous rock."

[1] Whether meanings can be manipulated in thought entirely apart from focal constituents (whether there is such a thing as "imageless" thinking) is not a question that is of vital importance in the present connection. The important thing is the meaning, and if this is present, the type of focal material seems inconsequential. In any event, "imageless thinking," if it is a possibility, is probably possible only as an outcome of dealing explicitly with sensory materials which originally were "focal" in consciousness (cf. W. F. Book: "On the Genesis and Development of Conscious Attitudes," *Psychological Review*, vol. xvii, 1910, pp. 381 ff.)

[2] Cf. J. Dewey: *How We Think*, Boston, 1910, p. 125: "Any meaning sufficiently individualized to be directly grasped and readily used, and thus fixed by a word, is a conception or notion."

The above terms have been defined somewhat arbitrarily and perhaps without due reference to the possible omissions and overlappings; but to account for all of the possibilities would be to write not one chapter, but a book. The aim here is to make as clear as is possible in a brief space the meanings that are attached to these various terms. In the present connection, it is not so much the structural characteristics of these different conduct-controls that concern us, as it is their functional significance, to which we must now turn.

4. In what ways will ideas, meanings, concepts, facts, and principles affect conduct? Their general function may be summed up in the statement that these controls bring consciously to bear upon the problems of adjustment the related factors of past experience, thus making possible a response that is consciously adapted to the situation in question. For convenience in discussion, ideational materials may be classed under four heads, each of which has important relations to conduct: (*a*) relatively complete sensory reconstructions of past experiences; (*b*) partial reconstructions of past experiences which fuse with present impressions to form what we have termed "assimilations"; (*c*) mental constructions which unite elements of different past experiences in new combinations; (*d*) symbolic representations of experiences or combinations of experiences that cannot or need not be accurately constructed or reconstructed in primary sensory terms.

(*a*) The relatively complete sensory reconstructions of past experience most frequently function as guides to adjustment when immediate sensory data are lacking. Thus when one

attempts to walk through the woods on a dark night, the appearance of the woods by daylight may be recalled as vividly and distinctly as possible, and thus serve the purpose that the actual perception would serve under other conditions. Or, if one is uncertain of the pronunciation of a word, the word may be imaged as one has heard it pronounced, and the articulatory adjustments may thus be guided in the light of this conscious reconstruction of the sounds. One planning a journey may image the map of the region through which the journey is to be made, and determine the route accordingly.

The degree in which these relatively accurate reconstructions of experience are used in guiding conduct varies with the needs of the organism for making adjustments of this type, and is dependent also upon the ability of the organism to recall experience in these "free images." This ability seems to be a relatively late development in the natural history of mind; only the higher animals are capable of forming such images and acting upon them.[1] In the human species, the frequency of such functioning depends also upon the individual's capacity for visual imagery, since, in immediate perception, the visual sensations normally form the most accurate guides to adjustment.

(*b*) The immediate "assimilation" of perceptual elements to ideational elements has a manifestly important relation to conduct. When one reacts intelligently to a situation, one reacts with reference to the meaning with which experience has endowed the situation. The immediate "recognition" of the objects of the environment as such means simply that these objects have been referred instantaneously to their appropriate place in the scheme of individual life. We "read" meaning into the tables, chairs, books, and other objects that surround us; experience is reacting upon present consciousness

[1] Cf. M. F. Washburn: *The Animal Mind*, New York, 1908, p. 275.

through the ideational elements that are fused with immediately-aroused sensations.

(*c*) Mental constructions which unite in a new way different elements of past experience are popularly known as products of the imagination. As controls of conduct, these constructions are significant in two ways: (1) They permit "remote adaptation," [1] or adjustments to situations which are not actualized in the present environment. By taking elements from past experiences, one may construct an idea of what the coming winter is likely to be, and prepare for it accordingly. The inventor may put together a machine in his imagination before he actually constructs it from real materials. The artist may envisage his picture before he places a single pigment upon the canvas. The composer may construct his symphonies before he writes the score or works out the various phases upon the piano. This constructive imagination is a factor of the very largest importance in the control of human conduct. In it, the elements of past experience are combined in the light of some dominant end or purpose or ideal; the ideas and images that one orders and arranges are then *guides* to the realization of one's purpose. (2) The "passive imagination," which lacks the influence of a dominant end or purpose, is not without its function in the control of conduct. The tendency to phantasy or "day-dreaming," which is responsible for many ideal constructions that cannot be actualized, may, by chance, suggest an important modification of conduct. Nature's prodigality is nowhere more evident than in the realm of phantasy, and not a few of the important advances made by the race have probably had their inception in passive imagination, — in idle "day-dreaming." Again, imagination, whether of the con-

[1] Cf. I. M. Bentley: "The Memory Image," *American Journal of Psychology*, vol. xi, 1899, pp. 1 ff.

structive or of the merely passive sort, may serve a useful recreative purpose, particularly in initiating attenuated adjustments, — reduced and schematized units of conduct, which gratify vicariously some instinctive desire or impulse which could not, under existing conditions, be actualized in objective conduct, but which, if denied all gratification whatsoever, might give rise to serious results. It is in stimulating imagination to these ends that fiction and the drama have a large sphere of usefulness. Love and war, — the two dominant themes of imaginative literature, — have their roots in fundamental instincts, the gratification of which is often inconsistent with social requirements and restrictions.[1]

(*d*) Symbolic representations of experience are typically illustrated by the words which language employs to represent ideas and meanings. As already suggested, no new element is introduced here. Instead of employing the original sensory data of experience, a symbol is used to represent in the focus of consciousness the meanings which are the important factors in constructive thinking. This has the manifest advantage of being related to other symbols through conventional forms; language facilitates thinking by making it possible to reconstruct the essence, the meaning, of experience without necessitating the recall of all of the original sensory details. Thus the individual is enabled to manipulate his own experiences much more economically and effectively than would otherwise be the case. If, for example, I have undergone a very disagreeable experience by taking a journey upon

[1] Cf. Freud's interesting theory of the function of dreams in providing a vicarious gratification for instinctive desires that cannot be actualized. S. Freud: "The Origin and Development of Psychoanalysis," *Lectures and Addresses before the Departments of Psychology and Pedagogy, Clark University*, Sept., 1909, p. 22: "The manifest dream, which we remember after waking, may then be described as a *disguised* fulfillment of *repressed* wishes."

a certain railroad, it is not essential for me to reconstruct the entire experience in order to guide my conduct on my next trip. All that I need to do is to attach the word "disagreeable" to the name of the railroad in question. This word carries with it the "cues" to conduct that are essential, and that represent everything in the entire earlier experience that has an important bearing upon the present situation.

Constructive thinking differs in no essential feature from what has just been described as constructive imagination. Indeed, the two forms may often work together in the solution of problems. The chief difference lies in the fact that imagination deals with concrete images, while thought deals with symbols; but it is manifest that, in both cases, it is the meanings that are important; in the one case these meanings attach to images that represent more or less faithfully the sensory details of earlier experiences; in the other case the meanings attach to symbols that have no necessary sensory resemblance to the experiences that they represent.

As has been pointed out, thinking in symbols involves the formulation of relations between concepts or meanings, — the process that has been referred to as conceptual judgment, the products of which are crystallized in facts and principles.

5. The chief distinction between the controls that we are now discussing and the specific habits discussed in the preceding chapter lies in the fact that habits are specific responses to specific stimuli, while ideas, concepts, and meanings are centers of possibility of adjustment. For this reason, habit-building in education emphasizes *invariability* of response, while idea-formation emphasizes *adaptability* of response. The same fact may be expressed by saying that habit-building lays its emphasis

upon the adjustment, aiming not only to associate the response unerringly with its stimulus, but also and more fundamentally to associate the component parts of the total response with one another in an unchanging series. Idea-formation, on the other hand, lays its emphasis upon the stimulus as the center of a number of possible responses, any one of which is to be recalled and applied as the needs of a given situation may dictate.

It is for this reason that the formation of ideas and concepts deals so largely with "qualities" of objects and forces. The idea "river," for example, if it is to be an effective guide to conduct in any situation in which rivers may play a part, must suggest various qualities, such as wetness, motion, capacity to float buoyant objects, difficulty of crossing, and the like. Now these qualities have meaning ultimately in terms of adjustment, but the celerity and adequacy of the adjustment, important though these factors may be, are, as it were, taken for granted in idea-formation. If rivers were always to be adjusted to in the same way, the "meaning" of river would be simple enough, and idea-formation and habit-building would coincide; river would have meaning in terms of a single adjustment.

For the routine worker, the meanings of the objects with which he deals doubtless approach this simple type. For the ditch-digger the clod of earth may mean but one type of adjustment. The idea, in other words, is narrowly circumscribed; it is a "cue" to but one type of conduct. To the farmer the same clod of earth may have more numerous significances. To the agricultural chemist a shovelful of earth may be a whole universe of meanings. To the ditch-digger the relation of stimulus to adjustment is simple, direct, and immediate. To the farmer the relations are more involved,

and the interval between the reception of the stimulus and the reaction may, on occasion, be longer, owing to the fact that the meaning which bears upon the present situation must be selected from the totality of possible meanings. To the chemist, the clod of earth is a mass of qualities, each of which, it is true, may be — must be — a cue to conduct, but no one of which need be immediately associated with a conduct outcome.

In developing the concept of "commerce" in elementary geography, the problem is to associate the word with its meaning. To this end reference is made, by excursions or by pictorial or verbal illustrations, to the activities which are embodied under that term. The pupil gradually grasps the idea that commerce means the buying and selling and transporting of articles and commodities which people need. An adequate concept of this word involves the possibility of working its implications back into actual experience. The activities will mean little to the pupil so long as they are concerned with articles that he does not himself know through actual adjustment. But when reference is made to these articles, — sugar, flour, coal, clothing, and the like, — an initial extension of these meanings to other activities is possible. In other words, the "qualities" and "attributes" that are analyzed out in idea-formation are themselves simpler meanings, simpler "cues," through a synthesis of which the new idea may be developed.

One further example may serve to clinch this point. The high school instructor who wishes to develop the physical concept "work" must first develop the concept "force." He can readily relate this to the pupils' experience by associating it with the words "push" and "pull." But these words, in turn, must be ultimately translated into terms of actual motor adjustment, else the definitions that are constructed are purely verbal.

One may say, then, that concept-building or idea-formation differs from habit-building in laying its emphasis upon the *qualities* or *attributes* of objects and forces of the environment rather than upon the specialized responses which represent certain adjustments to these objects and forces. To "know" an object or a force, then, is not simply to have an automatic response ready for adjustment to it, but to know its qualities and attributes so that the various responses which these qualities and attributes suggest may be available for adjustment if need be. General education can make automatic but comparatively few responses, for the needs of individuals vary widely, and it is impossible to know just what types of habitual adjustment may be required in each pupil's later life. But general education may supply the pupil with ideas, concepts, and meanings, and with facts and principles, and this "knowledge" may enable him to initiate adjustments and form effective, specific habits in the field of activity in which his principal work will lie. "Complete" knowledge is, in any case, impossible, for complete knowledge would imply a knowledge of all possible attributes and qualities of all possible objects and forces, together with a recognition of the relation of these attributes and qualities to adjustment. Knowledge, then, is always relative; and an important task of general education is to determine what knowledge is important to all individuals.

5. The above analysis also suggests a danger that must be guarded against in using the term "conduct-

control." Conduct is normally a sociated with action, and action with muscular activity. But digging ditches and plowing fields, running races and fighting battles, do not represent the only kinds of conduct or adjustment that it is possible to make; and unless one extends the meaning of the term "conduct" far beyond its significance in ordinary speech, one is certain to fall into the danger that has been noted. An adjustment may mean physical inactivity or quiescence just as truly as it may mean activity or movement. It may mean contemplation, reflection, æsthetic enjoyment. An adjustment is an adaptation of the organism to a situation. It is, in terms of consciousness, the solution of a problem that confronts the organism. In still broader terms, it is the process of satisfying some felt *need*. One may feel a need that demands in its satisfaction absolute bodily inertia, or "pure" contemplation. The adaptation of the organism to satisfy the one need or the other is an adjustment, — is a unit of conduct. When the adjustment itself does not involve conscious control, it operates on the basis of either instinct or habit, according as the mechanism of the adjustment, — the coördination of functions essential to bring it about, — has been either inherited or acquired. Even the need itself may not come into the field of consciousness. When, however, the need is distinctly felt and the adjustment is not automatic or mechanical, a problem or a situation arises. It is then that the factors essential to satisfying the need and solving the problem must be directed

consciously and in the light of ideas or revived experiences. It is then that the images, with their various potentialities of adjustment, come into play. They are "tried out," as it were, with reference to the end sought, — with reference to the solution of the problem. Perhaps they pass through a long series of associations before the right cue makes its appearance. Perhaps they are highly elaborated and organized. But finally they must resolve themselves into one form of conduct or another. In one way or another the chain must be completed; in one way or another the problem is solved, or it is abandoned, — and abandonment is solution for the time being.

Suppose that I am awakened at night by a measured, rhythmic sound that I cannot satisfactorily identify. A situation arises. My sleep has been disturbed and a consciousness of possible danger constitutes a "need" for the immediate solution of the problem. I may tentatively interpret the sound as representing burglars in the house. The meaning "burglars" which I read into this stimulus is, then, the first reaction of experience upon my consciousness of the situation. The idea "burglars" holds within itself several cues to adjustment. I may be "satisfied" that it is a burglar. In that case my first problem, — to identify the sound, — has been solved, and another problem has arisen. Assuming, however, that the identification is not satisfactory, I must cast about for another "cue," — for another meaning under which to subsume this situation. I revive successive images of the surroundings of my house, — each image with its attendant meanings and possibilities. One by one they pass "before the mind"; but no "cue" that suggests a "satisfactory" solu-

tion makes its appearance, until through the associative processes, the image of my neighbor's barn, which is not far distant, is evoked. This image also has its quota of meanings,—its quota of possible cues for adjustment. The idea barn is associated with the idea horse, and this, in its turn, suggests the idea, "stamping horse." With reference to my problem, the situation is solved. A satisfying adjustment is at once initiated by the idea.

What I have done in a case of this sort has been to solve a situation by means of ideas. Had not my former experiences furnished me with such ideas, the situation could have been solved only by a process of trial and error. At it was, the solution was delayed only long enough for me to follow through a series of associated meanings until the one appeared that satisfied the conditions of the problem. My adjustment in this instance has involved but a minimum of muscular activity.

6. In the process of conscious adjustment to different situations, one is constantly making such "discoveries" as that just noted, — one is con tantly identifying new situations with old meanings or discovering some "relation" between new situations and old meanings, whether that relation be one of identity, of similarity, of difference, of cause and effect, or of any other of the various types of relationship which the logicians recognize. But whatever the relation, its value (if value it possesses) must always be in terms of adjustment. When I identify the disturbing sound with the stamping of the horse, I am simply transferring to the sound the significance or meaning which the stamping horse may possess with reference to the problem that confronts me.

When, as the result of reacting to a situation, I discover that water solidifies at a temperature below 32° F., my concept of water has been thereby enriched; its quota of potential cues has been increased; my control over future possible situations, — my potential ability to solve such situations satisfactorily, — has been widened and strengthened. In other words, as I identify, subsume, and relate meanings and situations through continued experience or adjustment, I reduce my experience to the form of *facts* and *principles*, which, in turn, may make my future conduct more effective.

Facts and principles, therefore, may be listed with ideas and meanings as conduct-controls that come out of experience. They constitute one of the most important forms in which the experience of the race is crystallized, and, in virtue of the possibility of recording these resultants of experience in written and printed language, and in formulæ, diagrams, pictures, and models, facts and principles form numerically the largest class of educative materials.

7. As guides to conduct, facts and principles do not differ essentially from ideas and concepts. The fact, as the result of a particular judgment ("This substance is chloride of calcium"; "Darwin was born in 1809"), simply makes explicit an element of meaning that may later be implicit in the particular concept or idea. Thus whatever "cues" attach to the meaning of chloride of lime come to attach to the particular substance which I identify as chloride of lime. Once the predicate is intimately

associated with the subject, the explicit relations expressed in the predicate come thereafter to be implied in the subject. Once I have learned that Darwin was born in 1809, whatever general meaning attaches to birth in 1809 attaches to my particular concept, Darwin. The principle as the result of a general judgment (for example, "All men are mortal") similarly makes explicit a quality that will afterward be implicit in the general concept.

8. The methodology of the development of the conduct-controls belonging to this group, — ideas, meanings, concepts, facts, and principles, — is less well understood than the methodology of habit-building. The chief problems are to insure wealth and accuracy of meanings, to insure the association of these meanings with situations which are likely to arise in connection with the problems of everyday life, and through organization to insure the recall of meanings when they are needed in meeting these and other problems.

When we think of meanings as cues to conduct, the functional significance of "qualities" and "properties" is much clearer than when qualities and properties are considered simply as logical attributes of concepts. If the idea of "commerce" is to function effectively as a conduct-control, the characteristics that are associated with the term must be associated also with adjustment. It is coming to be recognized as fundamentally important, therefore, that the terms which are used to characterize different phases of meaning be related to actual adjustment. The emphasis that has been laid upon objective teaching during the past quarter-century is an expression of

this recognition. Within the last decade objective teaching which does not provide actual situations demanding real adjustment has come to be looked upon as not thoroughly effective. The old maxim, "Proceed from the concrete to the abstract," still holds, but the term "concrete" has assumed a new significance. Because something is objective or material does not necessarily mean that it is "concrete" to the mind. *Concreteness — reality — lies in the situation demanding adjustment, — stimulating one to a reaction.* That effective concepts must have this sort of a basis is one of the important principles of latter-day educational theory.[1]

To fulfill this condition does much to insure the *accuracy* of concepts and ideas. If I define salt as chloride of sodium, and have no "meaning" for either "chloride" or "sodium," my meaning of salt has not been in any sense enriched. Either to extend a concept or to intensify it, necessitates an association of the concept with meanings, not with mere symbols. And somewhere, ultimately, the chain of associated meanings must touch the bed-rock of actual motor adjustment.

Present-day educational practice is beginning to shape itself conformably with this principle. In so doing, however, it is tending to neglect one of the chief virtues of its prototype, the old-time pedagogy, which insisted so strenuously upon logical organization and coherent system. The necessity for the latter requirement is not lessened in the slightest degree by the emphasis that is now being placed upon con-

[1] The "continuation schools" that have been adapted from the German plan and applied to American conditions in Cincinnati and Fitchburg furnish almost ideal conditions for an effective pedagogy. The actual adjustments come in the work that pupils do in stores, shops, and factories. The school work takes this intimate acquaintance with real situations as a basis and on this builds the theoretical instruction.

crete reference in teaching. Indeed, it is all the more essential, for under the older system a proportion of the pupils in our schools made the concrete references for themselves; they found that it facilitated the learning process in a way that they were not slow to utilize. The insistence upon coherent, logical organization was, therefore, all that they needed to make the development of ideas and principles thoroughly effective, and the school took good care that this condition, at least, was adequately met. To-day the effort of the schools is directed largely toward insuring concrete bases for concepts, while the important task of logical organization is frequently neglected. It is clear that this task is frequently beyond the powers, even of those pupils who were able, under the old régime, to "concrete" the concepts for themselves.[1]

9. The "law of concept-building" has been formulated in recognition of the necessity for this concrete basis. It is expressed in the familiar pedagogical dictum, "Proceed from the concrete to the abstract, and from the particular to the general." Spencer[2] very clearly formulated the law as a specific expression of the principle that the development of generalizations in the mind of the child should proceed in the same general fashion as the development of the same generalizations in the experience of the race. The followers of Herbart[3] have worked out an elaborate system of instruction following this inductive order. As a result, the institutions for the training of teachers

[1] Cf. J. Adams: *Exposition and Illustration in Teaching*, London, 1909, especially pp. 197–198.

[2] H. Spencer: *Education*, New York, 1895, ch. ii.

[3] For example, W. Rein: *Outlines of Pedagogics* (Eng. trans.), Syracuse, 1895; C. De Garmo: *Essentials of Method*, Boston, 1889; C. A. and F. M. McMurry: *Method of the Recitation*, New York, 1903.

have come to lay strong emphasis upon the well-known "formal steps" of development. In fact, even to-day, there is but one "approved" method of impressing general concepts and general principles, and that one way is to lead up gradually to the general form through the particulars upon which it is based, and to which it must be referred if its meaning is to be clearly apprehended.

This emphasis of the inductive procedure has been of great importance in the development of educational method; but it has also led to the condition that was noted above, — in the eagerness to lay concrete bases, logical oganization has been frequently neglected. This neglect of the "logical" for what has been called the "psychological" order of development has also tended to blind teachers to the very important type of instruction that begins with a clear enunciation of the principle and then proceeds to illustrate it by concrete cases. It has also, in some instances, insisted upon a tedious development of a concept or a principle the meaning of which would be clearly apparent to all pupils without taking these steps. A fourth criticism to which the overemphasis of inductive development may be subjected owes its cogency to the readiness with which induction as a process of instruction has been confused with induction as a process of establishing truth.

The value of proceeding from the concrete to the abstract in teaching is obviously quite independent of the value of a rigorous process of induction in firmly establishing a principle. It should not be assumed that merely leading the pupil to

attend to a few clear cases and to formulate whatever resemblances or differences he may discover among them justifies him in assuming that he has established the formula. In other words, the inductive procedure in this case is simply a pedagogical expedient, and it has its sole justification in the fact that it will, under certain conditions, serve to fix the principle more effectively than another procedure would do.

10. In the "Educative Process" [1] the writer distinguished between "development" and "instruction," — including under the former term the processes of teaching which lead the pupil himself to induce principles from particulars or to infer particulars from principles; and including under the latter term the processes of teaching which simply place ready-made judgments before the pupil in such a way that he may adequately apprehend the inductions or inferences drawn by the teacher. It is clear that the methodology of concepts, facts, and principles may employ either of these two methods: it may be either developmental or instructional; and, in either case, the procedure may be inductive or deductive.

The formal school exercises which have for their function equipping the pupils with concepts, facts, and principles may, accordingly, be classified under four types: —

(*a*) *The inductive development lesson*, which aims through a heuristic method to develop concepts and meanings upon the basis of particular experiences, or to develop principles upon the basis of preformed particular judgments.

(*b*) *The deductive development lesson*, which similarly employs a heuristic method in leading the pupil to infer from the

[1] Ch. xvii.

operation of a known principle certain conditions which he may later prove to be facts, or to explain a known fact by bringing it under the operation of a known principle.[1]

(*c*) *The inductive expository lesson*, which is similar to the inductive development lesson, except that it employs the instructional rather than the developmental procedure.

(*d*) *The deductive expository lesson*, which differs in like manner from its heuristic prototype.[2]

11. Ideas, meanings, concepts, facts, and principles have been referred to in the preceding paragraphs as "guides" to conduct. Subsequent discussions will revert to this designation, for it is this essential feature which distinguishes the controls of this type from those later to be discussed. Essentially, these controls are *instruments*, not *ends;* and as instruments, their efficiency depends upon the clearness, the accuracy, and the certainty with which they reflect experience. As instruments, also, they are impersonal, and may be used to direct conduct to unworthy ends as readily as to worthy ends. The importance of insuring that the *ends* of conduct shall be worthy justifies the emphasis that the next chapter will lay upon the distinction between *ideas* and *ideals*.

[1] This type of lesson is described and illustrated in *The Educative Process*, ch. xx.

[2] For an excellent discussion of expository teaching, see J. Adams, *op. cit.*

CHAPTER IV

The Acquired Controls of Conduct. (*C*) Ideals and Emotionalized Standards

1. Thus far, the discussion has recognized two important types of acquired conduct-controls; habits on the one hand, and concepts, facts, and principles on the other hand. If these exhausted the list, the task of the following pages would be greatly simplified. The materials of education could readily be reduced to two great classes, and the value of the results of education could be determined readily by reference to the social criterion. Unfortunately for our comfort, however, human conduct persistently refuses to be included entirely under these two categories, and an educational psychology that stops here is ineffective in practice because it leaves untouched a large mass of educative materials which practice simply cannot neglect.

As a matter of fact, conduct is fundamentally determined, not by the environment of the objective world, which sensation mirrors to us and to which perceptions and ideas refer, but rather by the *needs* of the organism. As was pointed out above, it is only with reference to organic needs that situations arise and form the objective centers of adjustment, of experience. It is these needs

and their satisfaction that lie at the basis of mental life, and it is to these needs that we must now turn to complete the list of conduct-controls with which education has primarily to deal.

2. At the beginning, a return must be made to instinct, which was dismissed so summarily a few pages back. From the point of view of consciousness, the essence of an experience (a "complete" adjustment) lies in the consciousness of the problem to be solved. This consciousness is more or less affective in its structure, — that is, it is represented by some emotional content.

This factor may be illustrated by reference to any great achievement. Peary's conquest of the Pole, for example, represents a large unit of human experience, which, because of its very "bulk," so to say, and because of the unity of purpose which bound together all of its elements, serves admirably the purposes of psychological study. Obviously, the prime controlling force in Peary's achievement was the purpose that dominated it. It is not sufficient to describe this purpose simply by saying that it was the *idea* of reaching the Pole. Thousands of men might have that idea. In Peary, however, the idea of reaching the Pole was infused with a powerful emotional force which made the idea directive over his conduct during the long series of efforts and trials and interpolated experiences. The idea of reaching the Pole came to be for Peary an *ideal*.

Now to realize this ideal became Peary's problem. The solution of this problem involved a series of adjustments to a series of objective situations. In each adjustment, other *ideas*, and undoubtedly other *ideals*, operated to control segments of conduct. In planning for his trip, he had to avail

himself of his own former experiences and of the experiences of others (both types largely crystallized in ideas, facts, and principles). From experience had been derived the fact that Arctic travel requires certain carefully selected supplies of food and clothing. Experience had supplied the data essential to determine the most favorable season for travel, the best means of travel, the number of men essential to an efficient exploring force, and the like. As each problem presented itself, Peary's former experience, and the knowledge that he had gained from a study of the carefully preserved records of former explorers, supplied the solution. But the entire trip, from the moment of its first inception to its culminating victory, was dominated and controlled by a fundamental ideal.

3. From what did this ideal derive the force that made it directive over so long a period in this man's life? It is here that we must turn back to instinct for an ultimate explanation. It may be that there is no distinctively native impulse which we may identify with "achievement," but there is something closely akin to it to be noticed even in very young children. The impulse to accomplish something, to do something that others have not done, to secure the commendation and praise of our fellows, — if this impulse is not inborn, then something is inborn that is readily transformed into it. At the core of every effective ideal one will find, if one analyzes far enough, some element of instinct, — something that must be included among the "given" factors in the problem of existence.

4. But the instinctive factor is, in highly developed ideals, only the "core." Experiential factors come

to play a most important part in the composition of ideals. The *idea* of the Pole, — the meaning that the word had for Peary even at the outset of his career, — formed an indispensable part of the ideal that was so effective as a control in his later life. The concept "Pole" has certain conventional implications. From the point of view of formal definition (which is only making the "meanings" of terms more explicit by bringing them, through other terms, closer to experience) the North Pole is one end of the earth's axis. But it also implies to most of us relative inaccessibility, danger, cold, unspeakable discomfort. These are vital, human meanings as contrasted with the formal definition-meanings of the logicians. It was these human meanings, one may readily believe, that were important in Peary's conception of the Pole. However that may be, the ideal that dominated his conduct had its intellectual constituents derived from experience as well as its core of raw impulse or native emotion.

5. The ideal of reaching the Pole, then, was only the large dominant purpose that actuated Peary in his efforts. Other *ideas* operated, as has already been pointed out, and other *ideals* came in to check and control conduct even within the sphere governed chiefly by his dominant purpose. The ideals of science led him to pause frequently on his course to take deep-sea soundings and to make dredgings of the sea bottom in order to determine for science the contour of the sea bed and the kind of life that it harbored. The magnetic and meteorological conditions were observed with a care and precision far

beyond the needs of his principal purpose. His ideals of loyalty to the service that employed him, of regard for his family and for the families and friends of his companions, — all these were factors that over and over again conditioned his adjustment. And each of these ideals, too, had its instinctive basis and its elements of intellectual meaning.

6. The illustration has been followed far enough, perhaps, to indicate what is meant by an ideal as a control of conduct, and by what essential features it is distinguished from what has been termed an idea. In disentangling the essential factors from the complicated web of human action, one is almost certain to derive elements that seem purely formal and lifeless. This lifelessness and formalism become all the more apparent when an attempt is made to distinguish these dissected factors or elements by formal definition. Nevertheless, a verbal definition has a function, even if it "hides as much truth as it reveals." To sum up the differences between ideas and ideals in definite terms, one may say that an idea is an image *plus* a meaning, and that an ideal is an image *plus* a meaning *plus* a strong emotional or affective coloring. One should hasten to add that the "image" referred to here need not be a concrete image: it may well be a symbol, such as a word, or it may be any other form of sense-material to which the meaning is attached. And when one speaks of the emotional or affective coloring, one simply means that, upon psychological analysis, the conscious "stuff" that makes

up the ideal is more vitally infused with a pleasant or unpleasant feeling-tone than is the conscious "stuff" that makes up the idea.

One or two examples will make clear that there is a distinction with a very important difference between these two terms. A certain idea of national unity was prevalent in this country prior to the Civil War. The events of the war transformed that idea into an ideal. Whatever has been intimately associated with pain and sacrifice and anguish can never again be quite the same. Just as instinct is basic to reason and sometimes overrides it, so the affective elements in an ideal overshadow the intellectual factors. Objectively and intellectually, national unity means the same to-day that it did in 1860, but its directive force over conduct is far more powerful, and its emotional content is far richer.

The idea of temperance may be clear enough to the man who scoffs at temperance. He may know what temperance means. The word may be surrounded by that halo of kinæsthesis which enables him to use the concept effectively as an interpolated control of conduct, — as a *means* to an end. In an abstract and purely intellectual way, he may even recognize its worth. But this is a vastly different thing from *feeling* its worth and making it an ideal that is directive as an *end* over his own conduct, acting through a long series of adjustments, and, therefore, becoming a prime control.

7. In general, ideals are the prime, the basic, the fundamental controls of conduct. Ideas are the subordinate, the interpolated controls. *Ideals determine purpose; ideas guide to the realization of purpose.*

Ideals dominate large experiences or large adjustments. Ideas control the smaller segments of experience,

the adjustments that are incidental as means to the desired or idealized end. The efficiency of ideas is largely dependent upon the fidelity with which they represent to consciousness the world in which it works. The efficiency of ideals is largely dependent upon the emotional force that lies back of them — upon the directness of their reference to felt needs. Ideas as products of race-experience are organized into facts and principles, and crystallized in the records of investigation. Ideals as products of race experience are expressed in poetry, in imaginative literature, in the fine arts, in music, in the forms of religion, government, and other social institutions.[1]

To see to it that the ideals which accumulated human experience has shown to be worthy and to make for social welfare are safely and effectively transmitted from generation to generation is obviously a prime task of education. The decline of the ancient civilizations is generally recognized as having been due to the fact that the races which had so laboriously built up these civilizations failed to transmit from generation to generation the ideals that were essential to their perpetuation. Chief among these are the ideals of self-denial and self-sacrifice, — those essential standards of human conduct that have made all advancement possible. It is because material prosperity eliminates the economic conditions

[1] Cf. W. W. Charters: *Methods of Teaching*, Chicago, 1909, pp. 45–48. Charters here shows the importance of determining in teaching any subject, whether it is to function as "end" or as "instrument."

which give vitality and emotive force to these ideals, — it is for this reason that material prosperity, unless checked and controlled by educative forces, tends to national and ethnic decay. Both Greece and Rome lacked an organized educational institution that would automatically instill these ideals into each generation. It remains to be seen whether modern education will be adequate to the task. Certain it is that the present tendencies in our schools toward ease and comfort and the lines of least resistance confirm rather than counteract the operation of that *Zeitgeist* which reflects so perfectly the moral decadence that comes with prosperity — the letting loose the grip that our forefathers, who lived under sterner and harsher conditions, had upon the ideals of self-denial and self-sacrifice.

8. It is clear that ideals, as well as determining purpose, also serve as *standards* or *criteria* for conduct in the realization of purpose. All of the recognized "virtues" represent particularly this type of ideal. Honesty, personal honor, chastity, patriotism, altruism, self-denial, cleanliness, — all these are ideas which must be strongly and effectively emotionalized in order to serve as conduct-controls. They have, it is true, an intellectual or ideational content, but this may be relatively simple. In any case, it is the emotional factor that is important.

It should be understood that the non-intellectual character of many effective ideals is not an essential condition of their efficiency. There is no reason why ideals that have a thoroughly justifiable rational basis should not be so strongly

emotionalized as to become ends in themselves. It is well to understand, however, that the efficiency of an ideal is not necessarily dependent upon what is popularly known as an appeal to reason. To "understand" *why* it is well to hold fast to certain moral standards is not, from the social point of view, nearly so important as to hold fast to these standards; and, unless rationalizing moral standards helps to increase the hold which they have upon social conduct, the justification of an educative policy that insists upon such rationalization is not at all clear. Certainly it should be determined in how far such attempts may serve to increase or decrease the efficiency of the ideals. It will probably be generally agreed that there are some ideals that have cost the race far too much in the slow process of their development to permit incurring any risk of losing them through a *premature* rational appeal.

9. In each of the two preceding chapters a section was devoted to the discussion of the "methodology" of fixing the conduct-controls under consideration. The term "methodology" sounds pedantic at best, and in connection with the transmission of ideals it is almost ominous. And yet, unless education can come to a rational understanding of this process, it will be unable to control with certainty the most important group of factors that determine conduct. At the present time, educators are working very largely in the dark in the solution of this problem. The school exercises that have to do with the teaching of history, literature, and art in all of its forms have been scarcely differentiated from those that have to do with the fixing of habits and the development or exposition of facts and principles. Of

late, it is true, what is known as the "appreciation lesson" [1] has been recognized, but it is yet to be analyzed and described. Here is a field for a type of pioneer work that is sorely needed.

[1] I believe that Professor G. D. Strayer deserves the credit for having first recognized that the school exercise in which "appreciation" is the chief concern should be differentiated by a distinctive name from instruction and training. See *Columbia University Extension Syllabi*, Series A, No. 23, 1908 p. 6.

CHAPTER V

The Acquired Controls of Conduct. (*D*) Prejudices and Tastes; (*E*) Attitudes and Perspectives; Summary

1. The conduct-controls discussed in the last chapter — ideals and standards — tend, through repeated functioning, to become *prejudices*. That is, they may be in their operation (and often in their genesis) quite independent of reasoned processes. More than this, their operation is closely similar to that of habit, although the conscious accompaniments are clear and unequivocal. When prejudices govern conduct, the reaction is commonly represented in consciousness by a strong wave of feeling or emotion, as when one experiences a "revulsion" of feeling at a proposal that is inconsistent with the ideals of honesty or personal honor. They form, as it were, immediate and self-sufficient conduct-controls.

2. Closely related to prejudices as controls of conduct are what we ordinarily term *tastes*, although the latter are commonly somewhat milder in their effect upon consciousness. Like prejudices, they are characterized by the *propensity* that was noted in connection with habits; that is, conditions which fail to satisfy standards that have been repeatedly applied to the evaluation of certain

activities arouse a feeling of irritation and unpleasantness, which may indeed be only vaguely localized at the time being.

The person whose musical tastes have been highly "cultivated," for example, will react almost instinctively against musical efforts that fall below his standard. This is not a case of the direct application of the standard to the effort in question; it is rather an immediate and unreasoned reaction. It is undoubtedly due, as has been suggested above, to a frequent conscious application of the standard; just as prejudices grow gradually out of the repeated conscious operation of ideals.

3. This conception of prejudices and tastes as controls of conduct suggests still another type, even more intangible and difficult to analyze. Just as on the emotional side prejudices and tastes grow out of the frequent application of ideals and standards, so attitudes are, on the intellectual side, schematic and reduced resultants of the operation of ideas, facts, and principles. The two types of control are similar in that they operate upon consciousness in a peculiar way. They determine the manner in which a situation is interpreted, and this determines, of course, the reaction that is made to the situation. The two types differ in that the attitude is more closely related to the intellectual and ideational processes, while the prejudice, as has just been noted, expresses itself through an emotional reaction.

4. Educational theory has until recently been hampered by the failure of psychology to recognize types of conduct-controls other than habits and judg-

ments. But psychology now recognizes that attitudes, prejudices, tastes, perspectives, and various other factors, while they are extremely difficult to analyze out of the complex states of consciousness, are none the less fundamentally important in determining the way in which consciousness influences adjustment. Educational theory must determine how these important controls are developed, — for there can be no doubt that they are profoundly influenced by experiential factors, although their bases may be instinctive.

The psychology of these intangible controls is still in a very unsatisfactory condition, — but it is something to know that they have been isolated, recognized, and named. The Germans have employed the untranslatable word, *Bewusstseinslage*, to designate them, and recognize certain types, such as *Bewusstseinslagen* of determination (problem), doubt, certainty, familiarity, meaning, etc.[1]

Judd also explicitly recognizes "attitudes" as distinctive and significant features of consciousness. "Each individual has his attitudes toward his acquaintances, toward his ordinary forms of experience, and these attitudes have a stability and sanction which no single impression and no single disastrous result of applying the attitude can overcome. This is nowhere better illustrated than in referring to those attitudes

[1] See A. Mayer and J. Orth: "Zur qualitativen Untersuchung der Association," *Zeitschrift für Psychologie*, vol. xxiv, 1901, p. 6.; K. Marbe: *Experimentell-psychologische Untersuchung über das Urteil*, Leipzig, 1901; also a critique by E. von Aster: "Die psychologische Beobachtung und experimentelle Untersuchung von Denkvorgängen," *Zeitschrift für Psychologie*, vol. xlix, 1909, pp. 56–107; also an admirable summary of the German work in E. B. Titchener: *Experimental Psychology of the Thought Processes*, New York, 1909, ch. iii.

which we describe in ordinary life as one's tastes. . . . That tastes *are built up on the foundation of individual experiences no one will deny; that they are forms of memory is an assertion which no one would make unless he were prepared to extend the word 'memory' to include all organizations within personal consciousness.*" [1]

It is just this conception of a mental attitude which is not to be identified with memory, and which consequently does not influence adjustment directly through a judgment process or through the conscious application of previously acquired ideas and concepts, — it is precisely this conception that educational theory needs in order to make thoroughly rational the justification of what we have termed "general culture." So long as control over conduct was thought to be limited on the one hand to specific habits and on the other hand to ideas, facts, and principles, explicitly revived and applied, it was impossible rationally to justify a large part of the educational curriculum, although a great many people "felt certain" that important values were realized by the materials in question. "Feeling certain" that something is true and being able to demonstrate its truth are two quite different matters, as any tyro in geometry can testify; and when one's conviction is loudly and persistently challenged, the mere "feeling" is likely to satisfy only the person immediately concerned.

An attitude is well illustrated by the resultant of historical study. As will be shown in the sequel,[2] one does not, from the

[1] C. H. Judd: *Psychology*, New York, 1907, pp. 240 f. (Italics mine.)
[2] See below, pp. 140 ff., p. 237.

study of history, ordinarily gain generalizations and principles which are rationally applied to the solution of existing problems. One gains rather a perspective upon present problems, or an attitude toward present problems, because one interprets them in the light of their genesis, — one sees them through a vista of the events which led up to them and of which they (the existing situations) are the culmination. If one is skeptical of the great difference in conduct that is caused by looking at situations through such a medium, one may quickly be convinced of this difference by subjecting some problem to an historical investigation. Let a teacher take, for example, some controverted question in the teaching of his own subject. And then let him go back over the history of teaching the subject and learn how this problem arose. He will find that his attitude toward the problem has been measurably modified. The reaction to the situation is vastly different from what it would have been had he not made this historical excursus.

The concept of attitude is also illustrated by the difference between the effect which unusual natural phenomena have upon the ignorant and the effect which they have upon those who are "educated." Knowledge has "liberated" mankind from the thralldom of mystery and fraud, but this enlightenment finds its commonest expression in an "attitude" rather than in a series of reasoned judgments. Those phenomena which once aroused fear and dread, and stimulated mankind to mystifying interpretations and the consequent inadequate adjustments, no longer exert their irritating influence. They have been reduced to law and order — they have been given their proper place in the scheme of things. So far as the individual is concerned, the "understanding" of such phenomena results in an attitude that might be termed a "negative" adjustment: situations that would otherwise impel one to an unnecessary or inadequate response are unheeded, and mental energy is

consequently "freed" or "liberated" and is available for other purposes.

5. Prejudices, tastes, and attitudes are, like ideas, closely related to habit. This relation is twofold: in the first place, they may initiate specific habits, as when one's prejudice in favor of personal honor governs one's conduct in a new situation, and repetitions of the same experience gradually reduce the specific adjustment to an habitual response; in the second place, prejudices and attitudes may, under certain conditions to be described later, grow out of specific habits, — as when the habits of Sunday observance, established in early childhood, become more or less explicitly formulated as ideals and gradually come to express themselves in a deeply seated prejudice or "propensity," which makes the lack of such observance a matter of discomfort in later life, even though one's ideas of the sanctions for such observance may have undergone a radical change. The present interpretation of the doctrine of formal discipline is based upon the belief that specific habits may be generalized into ideals and prejudices which, in turn, make possible the acquisition of similar habits in new fields, — as when, from the specific habits of accuracy and close reasoning developed in the school exercises in mathematics, one comes gradually to idealize accuracy and close thinking as methods of procedure that will bring desirable results in other fields.

6. The paramount importance of recognizing attitudes and prejudices as resultants of the educative

process is confirmed from two points of view. In the first place, as has been pointed out, it is in these outcomes that the value of a "general" education must be very largely expressed; in the second place the key to moral training is to be sought primarily in the development of these controls. As James has suggested in his chapter on Habit, they are the great flywheels of society, holding the conduct of men true to the type that social experience has found to be most effective in maintaining social stability.

Nor is it only in the consciously-undertaken processes of formal education that attitudes and prejudices are significant. Recent investigations in the field of mental pathology indicate very clearly, not only the fundamental import of these factors as controls of conduct, but also their intimate connection with forms of stimulation and influence that are not consciously directed toward educative ends. This is clearly brought out in the following quotation from an authority in this field.[1]

"It is not the good and pious precepts, nor is it any other inculcation of pedagogic truths, that have a molding influence upon the character of the developing child; but what most influences him is the peculiarly affective state which is totally unknown to his parents and educators. The concealed discord between the parents, the secret worry, the repressed hidden wishes, — all these produce in the individual a certain affective state with its objective signs which slowly but surely, though unconsciously, [2] works its way into the child's mind,

[1] C. G. Jung: "The Association Method," *Lectures and Addresses Delivered before the Department of Psychology, Clark University*, Sept., 1909, pp. 66 f.

[2] The assumption that these influences are "unconscious" seems scarcely warranted. The parent or the teacher may be unconscious of

producing therein the same conditions, and hence the same reactions to external stimuli. [That is, the same conduct.] . . . The father and mother impress deeply into the child's mind the seal of their personality; the more sensitive and moldable the child, the deeper is the impression. Thus even things that are never spoken about are reflected in the child."

How the teacher may go about to develop the proper attitudes, prejudices, and tastes, — the "methodology" of this group of conduct-controls, — is a problem that can here be treated only in the briefest manner, for the very good reason that the laws underlying the genesis of these controls have yet to be formulated. In general, it is probable that the personality of the teacher and the "atmosphere" of the school are fundamental factors here. In other words, the teacher's own attitudes and prejudices must be right (for attitudes and prejudices are the sum and substance of that hitherto unanalyzed quality that has been termed personality) and the life of the school must be impregnated with the positive tendencies which we wish to have transferred to the minds of the pupils. As will be pointed out in a later chapter,[1] the concrete realities surrounding the child are the most effective sources of his ideals, and it is through the repeated application of ideals that prejudices are developed.

their influence, and the child himself may be unconscious of what it is that influences him, but the resultant mood or disposition is certainly a product of conscious processes.

[1] Cf. ch. xv.

There is nothing so contagious, perhaps, as the attitudes, tastes, and prejudices of any one who stands in an authoritative relation to others, but unfortunately the contagion is sometimes negative rather than positive; that is, the attitudes of those in authority are reacted against, and ideals of the opposite type are engendered. The problem here is to see to it that the teachers themselves have an adequate understanding of the various forces that may operate to negate the results of their positive efforts. Much of the work of the school fails to "hit the mark," not because the teacher does not work sincerely and conscientiously, but because he is unaware of the factors in his own life that are continually undoing the work that he has so carefully planned and executed. The unspoken and apparently unexpressed feelings and emotions that hover in the background of his consciousness are continually revealing themselves in his bearing, his tone of voice, his facial expression, his gestures; and the emotional tone, of which these expressions are the unmistakable symbols, is inevitably taken up by those about him. The writer is convinced that many of the deleterious effects following from such conditions could be avoided if all teachers understood clearly the ease with which emotional states are communicated, and the consequent responsibility which rests upon them to govern the conditions of their own lives so that this silent but insistent influence shall be wholesome rather than baneful in its effects. And it goes without saying that the community which supports the school should see to it that the teacher is able to live under economic conditions that will preclude at least one very disastrous source of worry and irritation.

7. From the point of view of the formal instruction, the methodology of fixing the appropriate attitudes and prejudices, once the teacher's personality and the atmos-

phere of the school are favorable, differs in no radical way from the methodology of ideas and ideals. The intellectual attitudes and perspectives result, it may be assumed, from the operation of facts and principles; the emotional attitudes (prejudices and tastes) result from the operation of ideals. There are, however, some important implications for the organization of educative materials in this connection, even if the specific methods of teaching are not materially affected. Of these the most important has to do with the arrangement of facts and principles in such a way that they will inevitably result in appropriate attitudes and perspectives. If the study of history, for example, is to give one an effective perspective upon present situations, the treatment must emphasize causal relations; it must take the pupil back into the past and give him a view of the present through the medium of the events which have made the present what it is. Again, if the study of natural science is to give one an adequate attitude toward the phenomena of nature, it must explain these phenomena in the light of their causes. The coherent, logical organization, which is just now in danger of neglect, is of fundamental importance in this connection.

8. *Summary.* The controls of conduct which education may develop may be restated and defined in the following terms: —

(*a*) *Habits:* definite responses to definite stimuli, initiated consciously, and, through practice and repetition, freed from the necessity of conscious control.

(*b*) *Ideas, concepts,* and *meanings:* definite mental structures, representing consciously the objects and forces of the environment, and the significances which these objects and forces have for the life of the organism. These controls function chiefly as interpolated or subsidiary guides to adjustment.

(*d*) *Ideals, emotionalized standards:* mental structures, less tangible and definite than ideas, and more highly colored by emotion, and, by that token, more closely related to instinct and primitive impulse. These controls function in determining the purpose, end, or motive of conduct, as contrasted with ideas, facts, and principles, which are conscious guides to the realization of purpose.

(*e*) *Prejudices, tastes:* emotional tendencies and dispositions, resembling habits in many ways, but on the whole more general in their reference and having a more noticeable effect upon consciousness; these controls function in determining the manner in which situations are interpreted.

(*f*) *Attitudes, perspectives:* mental tendencies and dispositions, differing from ideas in being less explicitly conscious in their operation, and from both prejudices and ideals in lacking the strong emotional element. Attitudes determine the manner in which situations are interpreted. In one sense, they are closely related to habits, the term "attitude" being somewhat synonymous with the term "mental habit" as used by the older descriptive psychologists to distinguish an habitual or

automatic mental tendency from a specific motor response or physical habit.

9. To multiply terms needlessly has been one of the chief sins of educational theory. It is easy to "darken counsel by words without meaning," and in a complex field like education there is much that is intangible and hard to define in any serviceable way. The writer has hesitated long before committing himself to the above analysis. It is not presented as a set of terms each of which connotes a distinct and unique set of activities, for the various factors that have been isolated and classified fuse together in a multitude of ways to form the infinitely varied patterns in the web of human conduct. Isolation and attempted definition in this field must always do more or less violence to actual conditions. On the other hand, it is believed that certain large and vital distinctions are represented by these five rubrics, — distinctions that are fundamentally important as "cues" to an effective use of educative materials. It is because, in the actual work of education, these distinctions are constantly recurring,—it is because actual practice has over and over again demonstrated the futility of neglecting these more intangible factors in conduct, — it is for this reason that an attempt has been made to dissect them out and define them consistently in terms of psychology. A distinction can be justified only by its effect upon practice, and the justification of the distinctions that we have made must be left to the following chapters. When we state that a certain sub-

ject of school instruction should result in specific habits and that another should result in ideals, and still another in attitudes, the statement should carry with it a distinctive "cue" for educational adjustment. It should suggest a distinctive position for the subject in the general curriculum of education, and, more than this, it should suggest a distinctive method of treatment specifically designed to develop the desired control. If our distinctions give us effective "cues" to the solution of the problems of organization and instruction, then the classification will be justified. If they fail to help us in this way, they will be futile, no matter how distinctive the differentiæ.

It is true that psychological investigation has not as yet furnished sufficient data to permit the establishment of principles that are unquestionably true. In some cases reliable data are at hand; in other cases — far more numerous than one would wish — it will be necessary to base our conclusions upon what may be termed "working hypotheses," built up from the best material that is available and "pieced out" by inference and analogy. In other words, the time is far in the future when a final statement of educational functions can be made. If we could postpone the demands of practice indefinitely, we might insure with absolute certainty against mistakes that have their source in false assumptions or erroneous conclusions. But happily or unhappily, the demands of practice cannot await the refinements of theory. Educational progress to-day is largely deter-

mined by a process of trial, error, and chance success. A new doctrine is proposed and "tried out" in practice; it is discarded or continued according to the verdict of those who use it. If it is continued, it is generally so profoundly modified as scarcely to retain a recognizable resemblance to its original form. And yet, slowly but surely, progress is being made. To the acceleration of this progress no step is, in the writer's opinion, so thoroughly essential as agreement among educators upon some principle of valuation; and, to this end, as has been shown, it is necessary, first of all, to determine with approximate certainty the ways in which the various phases of the educative process affect the conduct of the individual.

In this connection, a question of a very general nature still remains to be considered; namely, Within what limits is human conduct amenable to educative influences? This problem will be treated very briefly in the following chapter.

CHAPTER VI

The Limitations of Educative Forces in Modifying Conduct

1. Significant additions to the habits, the items of knowledge, the ideals, and the resultant attitudes and prejudices, which may be termed generically the culture-heritage of the race, are made through the experience of discoverers, inventors, investigators, — men who gain new insights into the forces that play upon them, make new adjustments to these forces, and then, through social heredity, give to the mass of mankind the benefit of their experience. This capacity to depart in some measure from the customary conduct of the race, to distinguish new situations which thereafter become "cues" for new and improved adjustment, is so relatively rare that the individuals possessing it are by common consent recognized as differing essentially from the average of humanity, and are classed as exceptions or "geniuses." When their discoveries fill a recognized gap in the culture-materials of the race, the rewards in the forms of honor, homage, and worldly emoluments are frequently surprisingly large. The question naturally arises, Can education, by the proper employment of its materials, increase the number of individuals possess-

ing this capacity for "initiating" new modes of adjustment? In other words, Can education contribute in any way to the production of "genius"?

2. There can be no doubt that education may influence the individual of exceptional capacity precisely as it influences the individual of ordinary capacity; namely, it may raise him to the culture-level that the race has reached, — it may transmit to him the culture-materials that the past experience of the race has furnished. In fact, the genius, because of his exceptional capacity, may frequently profit more effectively by an educative process than can a person of ordinary capacity. His advancements must be made upon the summit of the pyramid which represents the past acquisitions of the race; otherwise, though they may be "new" to him, they will not constitute a contribution to social progress. This, however, does not mean that education is in any way responsible for the exceptional capacity of the individual who is thus subjected to its processes. It is responsible only for the level upon which that capacity operates.

3. Again, education may, through the application of principles gleaned from race-experience, so modify the physical constitution of the individual that certain capacities, otherwise precluded from operation, will be permitted to function effectively. Thus native capacity might be delayed in, or prevented from, its normal development by unfortunate physical conditions. The thyroid gland, for example, which, in some way, at

present a matter of mystery, is so essential to normal mental development, may be defective or entirely lacking. Educative forces (using the term in a broad sense to cover all consciously-undertaken environmental influences) may supply the missing element in the form of thyroid-extract, and so insure normal development. Or, through insufficiency of food, or lack of appropriate external stimuli, the nascent capacities may fail of development. In cases of this sort, educative forces may correct the environment and so make possible a normal growth. But again it is quite clear that education does not create the capacity. It simply provides the appropriate stimuli and opportunities which develop capacity.

4. The question might be raised, however, Are not these differences that we term differences of mental capacity, — differences in ability to detect new situations and make new adjustments, — due to differences in early training and environment rather than to differences in native or inherited endowment? In the light of our present knowledge concerning this problem, this question must be answered in the negative. Capacity for initiation seems to be inherent in the nervous structure of some individuals, lacking in others. What its physical basis is, — with what differences of nerve-structure or nerve-quality it is correlated, — cannot be determined at the present time, but of the general fact of "congenital variation" in capacity there can be no reasonable doubt.

The evidence for this conclusion can be only briefly

sketched in this connection. Fundamentally, the argument against the assumption that such differences are to be attributed primarily to environmental or educational forces owes its cogency to the fact *that mental capacity follows the same laws with regard to its appearance and its transmissibility as do the physical characteristics that are admittedly not acquired.*

(*a*) The *a priori* argument to the contrary can be met on its own ground. Exceptional capacity, like variations in physical structure, may "crop out" from lines of descent that have, for generations, been perfectly normal or "ordinary." This stamps genius as a "variation" representing some analogous physical variation in the structure or function of the nervous system.

The sudden and unheralded appearance of genius from sources that seem most unpromising is, therefore, a fact in favor of the native character of genius rather than a fact that would argue against such an explanation. Lincoln, the product of a most unpromising heredity, is sometimes cited by the advocates of the influence of the development of capacity through environmental forces. The conditions of life under which Lincoln grew up can reasonably be assumed to have developed those qualities of head and heart that are recognized as constituting his greatness. The struggle with poverty, it may be urged, developed a keenness of judgment and a clearness of vision that a man brought up under easier and "softer" conditions might have lacked. The opportunities of a free and democratic life in a new country brought forth the deep and penetrating sympathy that so thoroughly characterized his later adjustments. The answer to these arguments is obvious enough. Of the thousands of men

who were products of the same environment, Lincoln was the only man to achieve this degree of eminence.

The case of John Stuart Mill has also been frequently cited as showing, in quite the opposite way, the influence of environment. The carefully planned educative process to which James Mill subjected his son may be reasonably urged as an adequate explanation of the son's remarkable capacity. But other fathers have certainly subjected their sons to excellent educative processes without obtaining proportionately remarkable results.

In both cases, capacity can be much more satisfactorily accounted for by the principle of variation, — in Lincoln's case by original "fortuitous" variation; in Mill's case by inherited organic variation. This theory is much the simpler, and consequently, by the principle of parsimony, is the one to be chosen. In both cases, however, the influence of the environment is not to be neglected. In both cases, doubtless, the forces of the environment, acting upon the inherited tendencies, stimulated these tendencies to appropriate development and function.

5. (*b*) In the second place, this fact — that differences in mental capacity follow the same laws with regard to their inheritance as do variations in physical characteristics — has been fairly well established through a series of investigations that merit much more extended treatment than can be accorded in this place. It will be well, however, to notice a few of the more significant of them, and a few also of the investigations that tend to confirm the opposite contention.

(*a*) *Investigations into the Conditions of Eminence.* (1) *Galton's Studies.* The first investigations of note in this field

were those of Sir Francis Galton, the results of which were published in 1869 in his "Hereditary Genius." Galton investigated the heredity of a number of men that the world agrees to designate as geniuses, and also that of a number of others, who, while not reaching the plane of genius, may still be characterized as illustrious or eminent. He maintains that eminence is due to three factors: zeal, ability, and a capacity for hard work; and that these factors are "native" — are not modified in any appreciable degree by environmental forces. To prove this thesis, he considers several types of eminence: English judges, English peers, military leaders, artists, scientists, musicians, poets, painters, and divines. These he groups into three classes: (1) those whose genealogy shows one eminent relative; (2) those having two or three eminent relatives; and (3) those having four or more eminent relatives. From his results it appears that the most distinguished among the persons he selects fall, generally, in the third class, and this third class is usually larger than either of the others. That is, the greater the man, the greater the number of eminent relatives. As illustrations, the following may be cited: Napoleon, Cæsar, and Scipio among military leaders; Macaulay, Fielding, Schlegel, Sidney, and Hallam among writers; Arago, Bacon, and Boyle among scientists; Mozart among musicians; Titian, Ponte, and Veccelli among painters; and Junius, Usher, and Herbert among divines.

It is clearly apparent that, although the most eminent men selected are found to have distinguished relatives, the most eminent men in the various fields covered by the investigation were not always chosen by Galton for his study. Thus Shakespeare's name is not even mentioned, while Goethe, Byron, Racine, and Heine are credited with but two relatives of note, and Galton admits that these are so far removed as probably to preclude any inferences from the relationship. Among divines, Luther's name finds no place.

Galton's studies, then, are open to criticism in respect of the selections that he makes. The cases that would count against his argument seem to have been carefully excluded.[1] For example, in a supplementary list of great statesmen, whose genealogy he traces, the name of but one American family is to be found. It is not that of Washington, or Lincoln, or Clay; these men he passes over, while he selects the Adamses. A plainer case of selecting the exception in order to support a theory would be hard to find. Again he limits the main materials of his study to the eminent men of England, and consequently selects from a society in which class-distinctions are relatively rigid, and in which the candidates for positions that give eminence are very largely drawn from the small minority of the upper classes. When he considers literary genius, which is obviously less trammeled by bonds of caste, he finds, out of thirty-seven eminent men selected, only eleven that fall in his third class, — that is, among those having four or more eminent relatives.

Notwithstanding the weak points in Galton's evidence, his conclusion that exceptional ability cannot be *created* by the environment is fairly well established. He has failed to show, however, that the hereditary factors that he mentions, — ability, zeal, and the capacity for hard work, — cannot be increased or diminished by environmental or educative influences. The conclusion that his investigations justify is that there is an extreme likelihood that these qualities are very largely factors of heredity.[2]

[1] Galton recognized the operation of this factor. Cf. *Hereditary Genius*, p. 322.

[2] The frequently cited instance of the Popes' adopted sons, adduced by Galton to prove the inadequacy of the environment in creating ability, has several weaknesses that have not always been noted. In the first place, such "sons" were frequently nephews, and consequently possessed some of the hereditary characteristics that the Popes themselves pos-

(2) *De Candolle's Investigations.* Galton's conclusion that the factors conditioning genius may in part be transmitted by the forces of physical heredity has not been seriously questioned; but his contention that genius will always come into its own in spite of environmental conditions has met with active opposition. De Candolle[1] was the first investigator seriously to question this contention. He made a statistical study of the men of genius represented by the membership of the three academies of science, Paris, Berlin, and London. He reached the conclusion that at least nineteen different factors condition the development of genius, and, of these, heredity is only one. In other words, innate capacity is not likely to come into its own unless some important environmental conditions are fulfilled, and among these formal education has a place.

(3) *Odin's Investigations.* Much more thoroughgoing and trustworthy are the investigations of Odin[2] upon the conditions favoring the development of literary talent. He found that the 5620 notable French authors whom he studied were not distributed equitably among the French-speaking people, but that certain localities, especially the larger cities, produced a much larger proportion than certain other localities, particu-

sessed. Galton's assertion, therefore, that the history of the Papacy records no instance of an adopted son's attaining eminence proves almost too much. Again, even neglecting this factor, the consciousness that one is only an adopted son and not the physical offspring of one's foster-parents may conceivably preclude the operation of certain incentives that might otherwise stimulate one to unusual achievement for the "pride of the race." Cf. *Hereditary Genius*, New York, 1871, p. 42.

[1] A. de Candolle: *Histoire des sciences et des savants depuis deux siècles*, Geneva, 1873. (Second edition, Geneva, 1885.) Summarized from Ward.

[2] A. Odin: *Genèse des grands hommes*, Paris, 1895. See especially vol. i, pp. 543 ff.; also Ward's excellent summary in his *Applied Sociology*.

larly the country districts. Furthermore, this distribution was quite disproportionate to the differences in population. Thus Geneva (including its immediate environment) was the birthplace of the largest number of eminent writers in proportion to its population; Paris and its vicinity came next; then, with a very pronounced decrease in the proportion, came Marseilles; other cities of still less importance were Dijon, Avignon, Lyons, Orléans, and Metz. The conclusion is that the advantages offered by urban life, and by a community of ideals and standards of evaluating effort, are extremely important in the development of native talent.

(4) *Cattell's Investigations.* This conclusion receives some measure of confirmation from the statistical studies more recently made by Cattell [1] regarding American men of science. Out of a total of 867 eminent men of science, the New England states have furnished a much larger number in proportion to the population than any other section of the country.

The conclusions that have been drawn from these three last-named investigations are preponderantly in favor of the environment as the determining factor in the development of talent, although they do not prove that superior ability is not primarily due to variation and heredity. As Thorndike has pointed out, [2] the data adduced by Odin and Cattell do not justify a conclusion that heredity is not an important factor, for the environments that are found to be favorable for the development of talent are also the environments which attract the men of talent; in other words, it is not sufficient to rest simply with the conclusion that the birth rate in certain localities is likely to show a higher proportion of individuals who later become eminent; it must also be recognized that

[1] J. McK. Cattell: "A Statistical Study of American Men of Science," *Science*, vol. xlvi, 1906, pp. 732 ff.

[2] *Educational Psychology*, New York, 1910 (2d edition), pp. 122 f.

these localities are likely to draw to them as residents men of exceptional ability. Thus, while the university city of Cambridge, Massachusetts, has much more than a normal proportion of eminent individuals among those who claim it as a birthplace, it is also true that a disproportionate number of eminent men are drawn to Cambridge, and there become parents of children who may be presumed to inherit some of their exceptional qualities.

(*b*) *Heredity in Royalty.* Another type of investigation is represented by Frederick Adams Woods's "Mental and Moral Heredity in Royalty." [1] Woods escapes the fallacy of selection which beset Galton, by choosing a group every individual of which could be investigated as to ancestry and achievements, and also gauged with a fair degree of nicety in respect of his mental and moral qualities. Obviously there is but one group whose genealogical records are kept with sufficient care to permit such treatment, and that group is royalty. By examining the principal royal families of Europe, Woods reached the conclusion that both mental capacity and moral excellence "go with the blood," and are furthermore not essentially modified by the environment. He chose fifteen families, of which about 3500 representatives were studied. He graded the intellectual and moral traits of these representatives on a scale of ten, — "one" representing the lowest order of merit, and "ten" the highest. In grading these qualities, he used as a standard the adjectives that biographers and historians employ in describing these royal personages. If the leading biographers characterized a king's mental attainments as eminent or illustrious, a grade of nine or ten was accorded him; if he was characterized as an imbecile or a fool, he was given the grade one or two. Moral qualities were treated in the same general way. Drawing the information from a number of

[1] New York, 1906.

authorities lessened, of course, the chance of error, — that is, the errors in the judgment of the authorities tended to counterbalance one another.

A better idea of the nature of Woods's evidence may be gained by reference to some of the better-known characters that fall in the various grades. Ranking in Grade III for intellectual capacity — that is, ranking low in intellect — are George II and William IV of England; in Grade IV, George IV; in Grade I, Louis XVI of France; in Grade VI, Victoria of England; in Grade VII, William I of Germany; in Grade VIII, Alexander I of Russia; in Grade IX, the chief male figures are William III of England, Peter the Great of Russia, Charles XII of Sweden, and Henry the Navigator of Portugal; and, in a line closely related to royalty, Admiral Coligny of France. Among women of Grade IX is Maria Theresa. Grade X, representing the highest rank in intellectual ability, includes the following: Louis II, the Great Condé; William the Silent; John the Great of Portugal; Frederick the Great of Prussia; Frederick William, the Great Elector; Gustavus Adolphus and Gustavus Vasa of Sweden; Margaret of Navarre; Catherine of Russia; Anne, Mademoiselle Montpensier; Anne, Duchess of Longueville; Sophia Electress, daughter of Frederick V; Louisa Ulrica of Sweden; and Isabella of Castile. In the grading of moral qualities, it is sufficient to say that Christian VII of Denmark, Catherine II of Russia, and George IV were near the foot of the list; William the Silent, Prince Albert (consort of Victoria), Victoria, and Isabella of Portugal were at or near the head of the list.

The significant feature of Woods's investigation lies in the fact that the highest qualities of intellect and morality are centered about a very few hereditary strains. Among the fifteen families that he studies, four furnish practically all of the most eminent individuals. These are the House of Or-

ange, represented most illustriously by William the Silent; the Prussian royal family, represented by Frederick the Great; the Castile line, represented by Isabella; and the Swedish house, represented by Gustavus Adolphus. Furthermore, he shows that those in the highest grades have more relatives in the better and more capable half of the list that in the worse and less competent half. Finally his results show that certain families are almost entirely confined to the limits of royal mediocrity, never getting very far above Grade VI, and never very far below Grade V. Among these are the houses of Hanover, Saxe-Coburg, Gotha-Mecklenburg, Hapsburg, Orleans, and Saxony, and the ruling families of Denmark and modern Portugal.

Regarding certain influences of the environment that are generally supposed to be peculiarly "formative," Woods reaches this conclusion: "If conditions of turmoil, stress, and adversity are, as some believe them to be, strong forces in the production of the great men, there is no evidence from the study of royalty to support such a view. Wars have been in progress during much of the period [covered by the investigations]. Sometimes the royal hero has made his appearance, but more often he has not. It was not alone in the days of Henry IV of France and Gustavus Adolphus of Sweden that the times called for great men. The times are continually calling for great men. Never did a dying country call more urgently than Spain in the last three centuries, but none has yet appeared. Italy had to wait fifty years in bondage for her deliverers,— Cavour, Garibaldi, and Victor Emanuel. England could not get a good Stuart, but in a descendant of William of Orange, she found a hero in William III. . . .

"Therefore it would seem that we are forced to the conclusion that all these rough differences in intellectual activity which are susceptible of grading on a scale of ten are due to predetermined differences in the primary germ-cells."

(*c*) *Studies of Consanguineal Resemblances in Mental Traits.* (1) *Pearson's Investigations of Brothers.* The refinements of statistical methods have made possible some comparative studies of heredity and environment which add interesting testimony to the conclusions foreshadowed by Galton's early studies and substantiated in large measure by Woods. Karl Pearson's investigation[1] of the relation between the mental and physical characteristics of brothers is especially significant. Pearson's "coefficient of correlation" is a mathematically derived symbol which indicates the relationship which two groups of individuals bear to one another in any trait or characteristic which can be measured. If, for example, out of a thousand pairs of brothers measured as to height, it were found that the two tallest individuals were brothers and the two shortest individuals brothers, and that for every grade between the tallest and the shortest, brothers fell together, then the index of correlation for height among the one thousand brothers would be represented by the symbol + 1. If, on the other hand, the individuals on the "tall" side of the scale invariably had brothers who fell at corresponding places on the "short" side of the scale, the index of correlation would be −1. In the one case there would be a perfect direct relation of brothers as to height: in the second case, there would be a perfect inverse relation. On its surface, such an outcome of measurement would be impossible. It might well be, however, that between these two extremes, a coefficient could be found that would express accurately the relation that normally exists in stature between brothers. Thus a coefficient of +.80 would represent a high degree of resemblance; a coefficient of −.80, a high degree of discrepancy or differ-

[1] K. Pearson: "On the Laws of Inheritance in Man," *Biometrika*, vol. iii, Pt. II, pp. 131–190.

ence, while the coefficient o would mean that no uniform relation whatsoever existed.[1]

Pearson utilized this method in comparing the mental and physical resemblance of two thousand pairs of brothers. These brothers were graded by their teachers with reference to certain mental characteristics. The grades were then arranged in order from the lowest to the highest, and the relationship of the brothers determined. The following table gives the results: —

Ability	+.46
Self-assertiveness	.53
Vivacity	.47
Conscientiousness	.59
Popularity	.50
Temper	.51
Self-consciousness	.59
Shyness	.52
Handwriting	.53
Average	.52

These figures mean that in the average of a thousand cases, brothers resemble one another very markedly in respect of the qualities measured. A very "capable" individual is likely to have a brother whose capability is much above the average, while a dull or mediocre individual is likely to have a brother who is dull or mediocre. Now if it be proved that environmental and educative influences are approximately the same for brothers and will consequently produce the same results, the resemblance is not due to inherited traits, but to a

[1] For a description of this method of measuring relationships, see G. M. Whipple: *Manual of Mental and Physical Tests*, Baltimore, 1910, ch. i. Thorndike (*Educational Psychology*, 1910, p. 189) seriously questions the accuracy of all correlation coefficients calculated prior to Spearman's critique of the method in 1904.

similarity in environment. The significant fact in Pearson's results is that the degree of resemblance which he finds between the mental traits of brothers is almost precisely the same as the degree of resemblance between physical traits that are unquestionably not only inherited but also unmodifiable by external influences. Thus the average of the coefficients of resemblance of brothers in respect of stature, color of the hair, size of the head, length of the arm, color of the eyes, etc., is +.517, which is almost the same as the average of the coefficients for mental resemblance.

Pearson's work has been criticized by Spearman [1] on the ground that teachers' gradings are peculiarly liable to chance errors, but he concludes that, if these errors operate as he supposes them to, the coefficients would really be higher than those which Pearson has published. Thorndike [2] also criticizes Pearson for underestimating the importance of the errors in grading, and for permitting the factor of suggestion to operate in the directions given to the teachers who did the grading; he also maintains that Pearson's conclusions from his data should be seriously questioned because it cannot be determined just what the data measure.[3]

(2) *Studies of Twins.* That light upon the problem of mental inheritance could be gained by a comparison of the mental resemblances between twins first suggested itself to Galton.[4] He secured data regarding (1) twins who, while

[1] C. Spearman: *American Journal of Psychology*, vol. xv., 1904, pp. 97 ff.

[2] E. L. Thorndike: *op. cit.*, pp. 80 ff.

[3] Cf. Thorndike, *op. cit.*, p. 84: "To prove that conscientiousness is independent of training is to prove too much. One fears that Professor Pearson may next produce coefficients of correlation to show that the political party that a man joins, the place where he lives, and the dialect that he speaks are matters of pure inheritance uninfluenced by family training."

[4] F. Galton: *Inquiries into Human Faculty and its Development*, London, 1883, pp. 226 ff.

alike in childhood, spent their mature years under different environmental conditions and (2) twins who, dissimilar at birth, grew up under practically identical environmental conditions. He believes that his data justify the conclusion that mental resemblance persists in the first case, and that mental resemblance is not induced by similar environments in the second case. He reached this conclusion, not by actual measurements, but by comparing statements made by parents.

Thorndike's more recent study of twins[1] gives evidence that in a measure confirms this conclusion. Fifty pairs of twins from nine to fifteen years of age were measured with reference to mental and physical resemblances. Six tests were employed to determine mental resemblance: (1) the ability of the subject to detect and mark A's on a page of "pied" type; (2) the ability to detect and mark words containing *a* and *t* and *e* and *r* on a printed page; (3) the ability to detect misspelled words on a printed page; (4) ability in addition; (5) ability in multiplication; (6) ability to give the word opposite in meaning to a stimulus word (good-bad, false-true, and the like). The coefficients of correlation in these capacities were found to be as follows: —

"A" test	.+.73
Word test	.75
Misspelled word test	.75
Addition	.75
Multiplication	.80
"Opposites" test	.80—.90

The rather close parallelism between the mental resemblances and the physical resemblances of twins is shown by

[1] E. L. Thorndike: "Measurement of Twins," *Archives of Philosophy, Psychology, and Scientific Methods*, No. 1, 1905.

comparison of the foregoing table with the following coefficients of correlation in physical traits: —

Height	+.775
Width of head	.824
Circumference of head	.745
Cephalic index	.74
Forearm length	.66

If Pearson's data are at all reliable, and if they may be legitimately compared with these determinations by Thorndike, it would seem that both mental and physical resemblances are more striking in twins than in siblings, and that the unquestioned increase of physical resemblance between twins over the amount of physical resemblance among siblings is paralleled by equal increases in mental resemblance.

6. There seems to be little doubt that the differences in mental capacity shown by different individuals must be attributed very largely to hereditary influences, — to variation in the germ-cells. It is not to be inferred from this, however, that educative forces have no significant function in modifying human conduct. In answer to the query, what can education accomplish when the possibilities of human achievement seem to be fixed so rigidly by heredity, the following propositions may be considered:

(*a*) As pointed out above, education, in the largest sense of the word, can and must furnish every individual, no matter what his native capacity, with the conduct-controls that are represented by the culture-materials of the race. The investigations of heredity do not, at any point, controvert this principle. *Capacity* for achievement is doubtless inherited, but whether that achieve-

ment is upon a low or a high plane, — whether the gifted individual unwittingly rediscovers old truths, or proceeds from the most advanced position taken by past achievement, — depends upon the success with which education fulfills its mission.

Woods's investigations substantiate this principle. The forces of heredity express themselves most clearly in royalty, in part, at least, because royalty may be said to provide uniform educational opportunities for its progeny. The educational or environmental influences being practically the same, or the differences being of such a nature as to counterbalance one another, the residue of differentiæ among the various individuals must be due to variations in the germ-cells. This does not minimize the importance of training. It simply acknowledges that, where opportunities for training are approximately equal, all differences will be hereditary differences.

7. (*b*) While differences due to heredity stand out prominently when the educational or environmental influences are approximately the same for all individuals, it is equally true that much more striking differences may be justly ascribed to the environment where environmental and educational influences vary with different individuals of approximately equal mental capacity. Thus the savage infant, taken from his savage environment and reared in an environment of civilization, would, if returned to his primitive environment, at maturity, be a vastly different individual from his brothers and sisters who had missed training of civilized life. Three Fuegians who had spent three years among civilized peoples returned

to their native land on the ship *Beagle* at the time when Darwin made his memorable voyage. Darwin witnessed the meeting between these partially civilized Fuegians and their kinsmen. The differences in tastes, attitudes, and conduct in general, due to even three years in an entirely different environment, were striking in the extreme.[1]

8. (*c*) While the exceptional capacity which expresses itself in discovery and invention is to be looked upon as hereditary in its nature, it remains to education to pass on to future generations the fruits of these inventions and discoveries, and thus bring the mass of mankind to the level that genius attains. Newton said that he made his discoveries by "intending his mind" upon the problems that he wished to solve; to which Huxley adds that "forty lesser men might have intended their minds until they cracked" without achieving like results. But these forty lesser men may, nevertheless, assimilate the experiences that Newton alone was able to undergo, and profit by his discoveries just as effectively, in many respects, as if they themselves had made them. It is in this power to bring the masses of the race up to the point that genius has reached that education finds an undisputed function. Native capacity or genius, through the insight and the Herculean efforts that are vouchsafed to it alone, lifts humanity, notch by notch, to ever higher and higher planes. But it remains for education to place

[1] Cf. Darwin: *Journal of Researches*, New York, 1897 (Appleton's edition), ch. x.

the props that will sustain the race at these successive levels. Let education fail in this, and the lives of the masters will have been lived in vain.

9. (*d*) While it is, perhaps, justifiable to speak of environmental influences as merely establishing a "thin veneer" over the fundamental substratum of native endowment, it must not be forgotten that this "thin veneer" includes everything that we call civilization. It was this "thin veneer" that made Darwin's half-civilized Fuegians differ from their untutored brothers and sisters more strikingly, perhaps, in some respects, than these brothers and sisters differed from the anthropoids. It is this thin veneer that has made the difference between the German of to-day and his savage forbear that roamed the forest in the days of Tacitus and Cæsar. This measure of advance is not insignificant according to accepted standards. *And yet, it is well to remember that, after all, it is only a veneer, and that, if the veneering process which we call education should fail to operate, three generations would suffice to obliterate its traces, — three generations in which every educational process ceased to function would take the race back to the level at which it stood at the dawn of recorded history.*

It may, of course, be urged that selection has worked toward an "improvement in the human breed" during all these generations, and that even a total loss of culture-materials would not mean a total degradation of a civilized race to the plane of savagery. One cannot question the possibility, — and yet how slowly natural selection works in the human species is

strikingly evidenced by the ease with which traits that seem to be a part of native endowment are transformed through environmental influences. Witness, for example, the change that two generations of Western culture have wrought in the character of the Japanese people, and the even more remarkable transformation which Western culture is working in China to-day. If natural selection ever had an opportunity permanently to fix race-characteristics, it certainly had that opportunity in China. And yet, just as the foot of the Chinese girl, if left unbound from birth, grows into the normal form, even though generations of mothers preceding had their feet bound from infancy, so the Chinese mind, cramped through a thousand generations by Oriental traditions, assumes the Occidental characteristics when the environment is changed. In this case it seems fairly certain that, not only have acquired characteristics failed entirely to have any influence upon heredity, but also that natural selection has failed to build up a race having characteristics that would be naturally adapted to the environment. The improvement of the human race through breeding is doubtless a possibility, but the opportunities for its improvement through education are still far from realized, and these promise far richer returns in a generation than breeding could bring in a millennium.[1]

[1] There is, of course, no reason why the two processes should not combine to form a better race. Cf. the following conclusion reached by one of the leading contemporary authorities upon heredity: "If there is little or no scientific warrant for our being other than extremely skeptical at present as to the inheritance of acquired characters . . . this skepticism lends greater importance than ever, on one hand, to a good 'nature,' to secure which is the business of careful mating; and, on the other hand, to a good 'nurture,' to secure which for our children is one of our most obvious and binding duties; the hopefulness of the task resting especially upon the fact that, unlike the beasts that perish, man has a lasting external heritage, capable of endless modification for the better, a heritage

10. (*e*) With regard to the possibility of influencing in any significant measure by training and education such general mental characteristics as Pearson measured in his study of brothers, — such characteristics as shyness, conscientiousness, vivacity, popularity, and intelligence, — it is perhaps well to hold judgment in abeyance at the present time. That these factors can be less readily influenced by educative forces than certain more specific characteristics, there can be no doubt; but that systematic efforts, undertaken by well-matured methods, may not have some modifying influence, even upon these factors, the experiments that we have reviewed do not demonstrate with finality. All that they tell us is that, under the conditions of education under which the individuals measured have grown up, the effects of environment were not sufficiently significant either to increase or to decrease the force of heredity. On the other hand, with regard to moral character, which Woods [1] is convinced is almost as completely determined by inheritance as is physical form, there is abundant evidence from reformatories, and especially from schools for delinquent children, that the *proper sort* of modifying influences can turn into law-abiding citizens individuals who, beyond all doubt, would otherwise go to swell the ranks of the criminals.

In the State Industrial School for Girls at Geneva, Illinois, to which girls between the ages of ten and eighteen are sen-

of ideas and ideals, embodied in prose and verse, in statue and painting, in cathedral and university, in tradition and convention, and above all, in society itself." — J. A. THOMSON: *Heredity*, New York, 1908, p. 249.

[1] Woods, *op. cit.*, pp. 287 ff.

tenced for varying terms of years, but commonly until they have at least reached their majority, it is reported that 80 per cent of all persons admitted are turned from lives of error and become efficient members of the social order upon their release. It is not sufficient for the advocate of heredity to maintain that this 80 per cent of salvage represents the girls who were not, upon incarceration, inherently bad. That is simply begging the question. Unsubjected to the reforming influence of the school, the proportion that became respectable and law-abiding members of society would be pitiably small. With the school's influence, 80 per cent are saved. If their inherent characteristics would not save them and their acquired characteristics can and do save them, the practical moral value of the training cannot be disputed.[1]

11. (*f*) That external forces may have some influence in either increasing or decreasing the factors that Galton urges so insistently as conditions of eminence, — zeal, ability, and capacity for hard work, — there is evidence from experimental psychology, particularly with respect to zeal and the capacity for work. The well-known in-

[1] It is interesting to note that, in spite of the lack of statistical evidence, the authorities upon heredity (with the possible exception of Woods) cling rather tenaciously to the view that moral traits are more readily modifiable by the environment than are intellectual traits. For example, Thorndike (*Educational Psychology*, 1st edition, pp. 45 ff.): "The important moral traits seem to be more a matter of the direction of capacities and the creation of desires and aversions by environment than are the important qualities of intellect and efficiency. Over them, then, education has greater sway. . . ." Also Thomson (*Heredity*, p. 248): "The fact is undoubted that the initiatives of moral character are in some degree transmissible, though from the nature of the case, the influences of education, example, environment, and the like are here more potent than in regard to structural features. . . . The plasticity of character under moral nurture is a fact which gives us all hope."

fluence of pleasant and unpleasant stimuli upon the amount of energy which can be directed toward a given task, — the fact that an unpleasant stimulus decreases the availability of energy,[1] — would seem to speak strongly against Galton's fatalistic conclusion. It is true that geniuses are frequently possessed of the capacity to do strenuous work without this external advantage, and therein perhaps lies their chief difference from the "average man"; but if education, by a control of the environment, can enable an individual to give more energy to the task than would otherwise be possible, it is conceivable that it may, in some instances, overcome a disadvantage which might otherwise prevent a man who is talented not quite to the point of genius from doing the work of genius.

No little confusion in the discussion of heredity has arisen from the terminology. One commonly speaks of "character" as a *sum* of the tendencies contributed by heredity on the one hand and by environment on the other hand. It has very seldom been pointed out that the relationship could be much more helpfully thought of as a *product*. In other words, any single conduct-control operating in adult life is the expression of an inherited tendency *times* an acquired tendency, rather than of an inherited tendency *plus* an acquired tendency.

12. (*g*) That education may work very radical changes in *specific* characteristics, there can be no doubt. While

[1] Mayer and Orth found also that unpleasant mental states lengthened reaction-times in their association-tests. (Cf. *Zeitschrift für Psychologie*, vol. xxvi, 1901, p. 11.) In other words, mental activity is more sluggish and consequently inefficient under these conditions.

the investigations indicate that, under our present knowledge of educative forces and the best means to apply them, such a thing as "general efficiency" seems very little affected by educational influences, special efficiency is very highly modified.[1]

13. On the whole, the limitations under which education can *with certainty* produce desired results are fairly clear. It can bring the mass of mankind up to the level that the race has reached by furnishing the conduct-controls that are represented by the culture-products. These conduct-controls will probably influence adjustment in specific rather than in general directions.

On the other hand, as education comes to have *a more effective control over the methods that it employs*, as it comes more and more thoroughly to know and understand its problems and the materials with which it deals, there is large reason for hope that its sphere of influence may be extended to cover many of the factors governing adjustment that now seem to be beyond its reach.[2]

[1] Specialized professional training, for example, is a very important factor in determining "general merit" among elementary-school teachers. Cf. W. C. Ruediger and G. D. Strayer: "The Qualities of Merit in Teachers," *Journal of Educational Psychology*, 1910, vol. i, pp. 272–278.

[2] With this important qualification (namely, that education needs first of all a thoroughgoing analysis and mastery of its methods), even Ward's optimism may be justified: —

"The trend of the whole investigation has been in the general direction of showing that great men have been produced by the coöperation of two causes, genius and opportunity, and that neither alone can accomplish it. But genius is a constant factor, very abundant in every rank of life, while opportunity is a variable factor and chiefly artificial. As

Far from stimulating a pessimistic outlook, there is to the writer's mind something distinctly inspiring in this challenge which the biologists and the students of heredity throw down before the educator. If the latter lets the gauntlet lie untouched, if he lies back supinely under the spell of fatalism, it is simply because he has read into the results of the heredity-investigations vastly more than is there. Even upon their face, these investigations leave to education an all-important and absolutely essential task. But to this indisputed field, there is clear evidence that another may be added if only education develops its technique a little farther. Already there are indications in the work of Freud,[1] Jung,[2] and other investiga-

such it is something that can be supplied practically at will. The actual manufacture, therefore, of great men, of the agents of civilization, of the instruments of achievement, is not a utopian conception, but a practical undertaking. It is also comparatively simple, and consists in nothing but the extension to all the members of society of an equal opportunity for the exercise of whatever mental powers each may possess. There are many artificial substitutes for the various kinds of favorable environment, but since . . . these are effective only as they constitute an educational environment, it is obvious that this is the real factor in the development of genius and the progress of civilization. If, therefore, the educational environment can be supplied, the rest may be dispensed with, and the real end to be attained is simply and solely the establishment on a gigantic and universal scale of an educational environment." — L. F. WARD: *Applied Sociology*, pp. 220 ff.

[1] S. Freud: "The Origin and Development of Psycho-Analysis," *American Journal of Psychology*, vol. xxi, 1910.

[2] C. G. Jung: "The Association Method," *American Journal of Psychology*, vol. xxi, 1910. Also Emma Fürst: "Statistische Untersuchungen über Wortassoziationen," *Journal für Psychologie und Neurologie*, vol. ix, 1907, pp. 243 ff. Cf. also E. Jones: *Journal of Educational Psychology*, vol. i, 1910, pp. 497–520.

tors that the dominant motives of adult life are conditioned far more narrowly than has hitherto been supposed by the experiences of early childhood acting upon the fundamental instincts.[1] As yet, we know only that this hypothesis is highly probable; how to control these experiences so that the bases of future conduct may be accurately and effectively established must be left for patient investigation. But the outlook is extremely hopeful. The crying need, then, is for such investigation, not only in this new field of psycho-analysis (which has hitherto been cultivated chiefly by the alienist, but which promises valuable service to the educator), but also in the field of formal educational methodology. These chapters are presented in the hope that they may contribute even a little toward the recognition of this need.

14. The writer has purposely emphasized in the foregoing discussion the data that speak most strongly against the potency of experience as compared with that of heredity. The educator is and should be predisposed to a belief in the importance of the former factor. To him the writings of the "environmental" school are replete with inspiration. As an antidote to Galton, Pearson, and Woods, the works of Ward [2] and Cooley [3] are especially to

[1] It is in the closer similarity of associations of ideas between mother and children as compared with the father and children that the influence of constant and intimate contact is most clearly shown. (Cf. Fürst, *op. cit.*) Galton found marked similarity between twins in association of ideas, but attributed it to hereditary influences. (*Inquiries into Human Faculty*, p. 231.)

[2] L. F. Ward: *Applied Sociology*, New York, 1906.

[3] C. H. Cooley: *Human Nature and the Social Order*, New York, 1902.

be recommended.[1] The present writer has not given in detail the arguments that these men have so admirably presented, for, while he firmly believes that a strong faith in their doctrines is essential to enthusiastic service in the cause of education, he is also convinced that education stands in greatest need at the present time of a penetrating study of its chief problem, — the modification of human conduct through experience; and an unchecked faith in the power of education is likely to tempt the educator to assume that such a study is needless. Galton, Woods, and Pearson have thrown down a challenge that, — apart from the ultimate truth or falsity of their hypotheses, — should have a beneficial influence in spurring education to this investigation.

[1] F. H. Hayward's *Education and the Heredity Spectre* (London, 1908) is likewise very stimulating reading, although strongly partisan.

PART II

THE CLASSIFICATION OF FUNCTIONS AND VALUES

CHAPTER VII

The Criterion of Value

1. In the preceding chapters a classification has been proposed for the conduct-controls that may result from the processes of education. The question now arises, How may the relative worth of these factors be determined? Granted that certain controls may result from the operation of educative materials, what controls are to be selected as worthy of perpetuation, and upon what basis shall worth be determined?

2. The following discussions will employ the standard of social efficiency as the norm to which questions of this type shall be referred. The writer has, in another place,[1] attempted to justify this standard as a working guide in educational theory. In connection with that discussion, the chief characteristics of the socially-efficient individual were summarized as follows: (1) economic efficiency, or ability to "pull his own weight" in economic life; (2) negative morality, or the willingness

[1] Cf. *Educative Process*, ch. iii.

to sacrifice his own desires when their gratification would interfere with the economic efficiency of others; (3) positive morality, or the willingness to sacrifice his own desires when their gratification would *not* contribute, directly or indirectly, to social progress.

3. The social aim of education is open to criticism from several points of view, and it will be profitable to examine briefly at least two of the more serious objections that may be raised against its acceptance.

(*a*) It is frankly objective. It measures educational values, not by the subjective effects of educative materials upon the individual, but by the objective effects of these materials, — by their conduct-outcome, and even by their conduct-outcome only in so far as this affects society.[1] The inference is that many activities, recognized by the individual as "good" because they promote his own happiness, may not receive a sanction from the standpoint of this aim. Thus it is feared that too strong an insistence upon the social aim will place

[1] This is the essence of Ruediger's objection to the aim as stated in his *Principles of Education* (Boston, 1910, pp. 60 ff.): "Strictly interpreted, the social aim is but a partial statement of the aim of education, the truth of which is included in 'adjustment to life.' 'Life' is a broader term than 'social,' and includes it, just as human life is broader than social life, including the latter. Man comes in contact with the inanimate, the plant, and animal worlds as well as with the social, and these contacts are not always for the sake of the social. They may be primarily for the individual's own gratification. In actual life the individual is not subordinated to society in the extent that is implied by Bagley. Man indulges his taste in music, art, literature, philosophy, and even science, largely for his own immediate enjoyment, without any thought of social benefit, and it is conceivable that such benefit might not ensue."

economic efficiency at a premium and accomplishments in art, music, and literature at a discount; or, in a broader way, it is feared that the objective aim of social efficiency may lead education to lose sight of the individual sanctions and rewards which are to be expressed in terms of pleasure, happiness, æsthetic enjoyment, and self-realization.

4. This objection may be answered in part by saying that social efficiency does not preclude the cultivation of those tastes, diversions, and proclivities that bring to the individual their own subjective rewards. Indeed, the social aim would distinctly sanction the cultivation of such controls among all the individuals who are touched by educative forces, — provided always, of course, that the indulgence of the tastes that are cultivated does not interfere with the highest efficiency of the individual as a member of the social group. Indeed, it is one of the most important tasks of education to engender tastes that are consistent with social welfare; for recreation and relaxation are essential to the best service, and recreation and relaxation must be upon the highest possible plane if the degenerating effects of dissipation and prodigality are to be counteracted. Surely what is of the highest benefit to society in this connection is of the highest benefit to the individual, and *vice versa*. There is no danger, then, that a rational interpretation of the social aim will not find abundant room for art, literature, music, and the drama, as well as for healthful sport and for recreation of all sane and wholesome varieties.

5. But even if this were not true, it is hard to see why the social criterion should not have the position of primacy in a rational theory of education. It is true that the race is composed of individuals, but it is also true that the individual has always been subordinate to the race. Subjectively, the sanction of pleasure, happiness, or enjoyment may seem to be ultimate, but the slightest objective study serves to show that this subjective primacy of the feeling-tone is an illusion. It is true that, in the natural history of mind, the pleasant affective tone (the pleasure-signature) has, in general, attached to experiences that were biologically good, and the unpleasant affective tone (the pain-signature) has attached to experiences that were biologically bad. But "good" and "bad" for whom or for what? Certainly primarily for the *race*, and not primarily for the individual. Natural selection has seen to it that adjustments which, in the long run, are beneficial to the race are pleasant to the individual, but for man to conclude from this subjective sanction that the pleasant affective tone is the ultimate criterion of worth is a species of anthropocentricism comparable in every way to the naïve belief that the grass and the foliage are green and the sky blue because man finds these colors pleasant to the eye. Man has reached the point of intelligence where he sees the fallacy of this latter assumption, — while still enjoying the colors that nature so lavishly provides. He has not yet reached the point where he sees that the pleasant affective tone attaching to certain

experiences is simply nature's way of indicating that the experiences are, on the whole, good for the race, and that the accompanying pleasure to the individual is only incidental, not ultimate, — although, as in the other instance, he may keep on enjoying the pleasures, even though he knows that they are not ultimate sanctions.

6. Man has traveled a long way on the road of mental development since the pleasure and pain signatures were first produced by variation and, because they were good for the race, were perpetuated by natural selection. To-day man is possessed of an intelligence which has greatly diminished in importance many of the immediate sanctions of instinct. While intelligence was feeble, the organism needed the clear and unequivocal sanctions of immediate pleasure and pain to guide it in its adjustments. But when intelligence became stronger and gained a clearer insight into the forces that played upon the organism, it discovered that, after all, nature had done its work only in the rough. A great many things that were pleasantly toned were found to be bad; some things that were unpleasantly toned were found to be good; and man gradually reconstructed his scheme of values to fit these new insights, — and to fit also the changed environment which the elaborate organization of human society brought about. The immediate pleasure and pain sanctions gave way to rational thought-constructions which indicated with much greater nicety and precision the effects of adjustment. But, through all these changes, the fundamental law of life has not

been repealed. Just as the primitive sanctions of pleasure and pain were selected "naturally" because they promoted the welfare of the species, so these new sanctions must be selected "intelligently" upon the same basis. Natural selection has lost its sway in the human species because intelligent selection brings about the fortunate results much more quickly and certainly. But "fortunate" for whom or for what? Certainly primarily for the race, just as in the ages that have passed; certainly secondarily for the individual, whose subordination to the race is fundamental.

Parallel with the development of human intelligence has gone the development of what may be called the "social conscience," — that ideal which impels men to judge the actions of others in the light of the social significance of these actions.[1] This social conscience represents in human society the fundamental law of all organic life, — the law of race-primacy. As a final stage in the readjustment of this law to fit the newer conditions there is the present tendency to make this "social conscience" the criterion of one's own acts as well as of the acts of others, — to do away entirely with pleasure- and pain-signatures as unworthy to serve as sanctions for intelligent beings, and to make race-progress and race-welfare the *subjective purpose* of every life.

[1] For example, the social stigma that attaches to those convicted or even suspected of crime, or of unsocial practices. The often pitiless and sometimes inequitable and unjust application of this standard is only society's almost instinctive adjustment toward self-preservation.

7. (*b*) This naturally leads to a consideration of the second objection that may be urged against the social aim of education. If social efficiency is admitted as the working aim of education, it still leaves open the question, What is the destiny of human society? Toward what goal should education, in so far as it controls the driving forces, attempt to direct social development? And again the interests of the individual are raised to the forefront of the discussion. Now that human society has sent instinct down into the fire-hold to stoke the furnaces and placed intelligent purpose upon the bridge to command the ship, is it not its manifest duty to lay the course toward that port in which every individual of the species will be able to extract the largest measure of individual happiness from life? If the happiness of the individual cannot be considered as an ultimate sanction for individual conduct, is it not justifiable to place the greatest happiness of the greatest number as the ultimate sanction for individual conduct?

No one could consistently quarrel with this solution of the problem if it is accepted as purely objective, — if, in other words, the criterion of the happiness of others does not lead the individual to infer that his own individual happiness is a matter of proper concern *for him*. To work for the happiness of others is an indispensable factor in insuring the highest measure of social efficiency. If I say to myself, "I will seek my own happiness in promoting the happiness of others," well and good, — provided that any failure of the pleasure-

signature to attach to my own efforts does not impel me to face about and seek my own pleasure in a narrower sense. If it has this effect, then having made happiness explicitly my ultimate aim will be extremely unfortunate. Under such conditions (and such conditions are conceivable), it would have been far better for me to forget all about my own happiness and set my mind resolutely upon the accomplishment of some purpose that will promote social progress. Happiness will then very likely take care of itself, and, in any case, kind nature will see to it that pleasures sufficient to the tonic needs of life are enjoyed.

8. But what is this social progress for which one should strive? What is its criterion? In the writer's opinion, the only rational answer to this question is, Achievement. That conduct is worthy which promotes achievement; that achievement is worthy which promotes among all men the possibilities of further achievement. One works for the welfare and happiness of others, not because this welfare and this happiness are ends in themselves, but because what we term happiness is a condition of achievement; one works for the race, not that some future generation may spend its days in contemplating the true, the beautiful, and the good, — but rather that, so long as the human species shall exist, it may continue to participate in that great cosmic process which we call evolution; and that, when the end comes, and the scroll is at last rolled up, it shall be a scroll worthy of the only species of organic life

into whose keeping has been intrusted the consciousness of purpose.

One can indeed do no better here than to subscribe to Thorndike's formula:[1] " . . . the real work of man for man — the increase of achievement through the improvement of the environment."

9. All this is very far from saying that the feelings and emotions can or should be read out of life. It is very far from saying that pleasure and enjoyment are bad. It is simply insisting that the purposeful conduct of life shall explicitly recognize these forces as means to ends and not as ends in themselves; just as, in the instinctive conduct of life, they were implicitly means to ends. The emotional forces must be sublimated, ether-realized, — but they will still remain forces. And one may, of course, identify happiness with the successful accomplishment of a purpose that meets these social conditions. One may insist that the man who sacrifices the most imperious desires of life because their gratification is inconsistent with the "categorical imperative"[2] does so because the pleasant consequences of consistency with an ideal overtop the possible pleasure of gratifying his desires; this (or its converse, at least) may be a true account of the impelling motive; but it certainly needs the testimony of a frank introspective analysis

[1] E. L. Thorndike: *Educational Psychology*, New York, 1910, p. 139.

[2] Kant's famous dictum, "Act so that the maxim of thy will may always and at the same time hold good as a principle of universal legislation," is the clearest formulation of the social criterion of conduct.

of the volitional consciousness to make it convincing. Logically, it may seem inevitable, — so also certain other mental processes have seemed logically inevitable, but introspection has failed to find them.

10. Have we not in this sublimation of primitive feeling-tone, attenuated to what is, in effect, its vanishing point, an adequate basis for the development in the individual of the ideal of Duty, — a basis for the rational conception of the Moral Law, which Kant placed among the "given" factors in mental life? And cannot an educational theory based upon an empirical psychology thus find in its system a natural place for the word "Duty" which it has so long neglected?

CHAPTER VIII

The Rubrics of Function and Value

1. The discussions of educational values have not hitherto distinguished between two quite different types of controverted problems. The much-discussed question of formal discipline, for example, is not, strictly speaking, a question of educational values; it is rather a question of the possibility of educative materials functioning in a certain way. No one would question for a moment the *value*, from the point of view of social and economic efficiency, of the generalized "powers" and "capacities" that the study of certain subjects has been assumed to engender. The question at issue relates entirely to the possibility of these subjects fulfilling the functions that their advocates maintain may be fulfilled. The keen powers of reasoning that mathematics is supposed to develop, for example, would be of unquestioned value if they could be made an inevitable outcome of mathematical training.

On the other hand, one may justly inquire as to the relative *value*, from the social point of view, of geography and manual training in the elementary curriculum, or of history and commercial arithmetic in the secondary curriculum. Properly speaking, these are questions of value,

for they must be answered by reference to the standard of evaluation. The problem of formal discipline, on the other hand, cannot be solved by the application of this standard. It is fundamentally a scientific, not an ethical, question. It must be solved by psychological experimentation, and the task of such experimentation must be to demonstrate conclusively whether the supposed transfer of the results of training from one field to another actually occurs as the advocates of the doctrine assume.

2. In the subsequent discussions an attempt will be made to distinguish sharply between questions of *function*, — positive questions, which must be answered by an appeal to facts; and questions of *value*, — normative questions, which must be answered by an appeal to norms or ideals.

This dichotomy is quite in keeping with the distinction that was drawn between knowledge and ideals in Chapters III and IV. Ends and means must be sharply distinguished, especially when they are likely to be confused as standards of judgment. Facts and principles are, as has been said, interpolated controls of conduct. Ideals and norms are final or ultimate ends of conduct. The ultimate end of education that one adopts must become one's standard or norm for measuring the worth of the materials that enable one to gain this end. The facts and principles of the educative process are the interpolated guides that help one in adjusting means to ends. Educational psychology is the positive science which the educator must utilize in this adjustment; ethics is the normative science which supplies the standards or ideals.

3. In so far as functions are concerned, the key to classification is inherent in the analyses presented in Part I. Educative materials differ in function according to the type of conduct-control that they engender. It will be useful, however, to classify the functions by grouping together related types of controls. This suggests the following scheme: —

I. *The Training Function:* This will designate the operation of materials that are to result in specific habits.[1]

II. *The Instructional Function:* Designating the operation of materials that are to result in facts, principles, ideas, concepts, or meanings, or, generically, in knowledge.

III. *The Inspirational Function:* Designating the operation of materials that are to result directly in ideals or emotionalized standards.

IV. *The Disciplinary or Indirect Training Function:* Designating the operation of materials that are to result in ideals of method or procedure, or prejudices in favor of certain habits, as an indirect result of the formation of such habits.

[1] It should be borne in mind that the criterion of function is the type of conduct-control that the materials in question leave with the individual at the conclusion of the educational unit under consideration. Thus a course in primary reading has to fulfill a direct training function in that it must leave with the pupils a number of specific habits. A school exercise in reading may have a training or an instructional or an inspirational function, according as it leaves either (*a*) habits already fixed or well on the road to automatism; (*b*) facts, principles, or ideas; (*c*) ideals. *But the facts, principles, ideas, and ideals may later work over into habits.* Again a course in mathematics may leave with the pupil ideals of mathematical method, but these ideals may work over into habits in the pupil's later life. In any case, it is the type of conduct-control that is left at the conclusion of the educational unit that determines the place of that unit in our classification.

V. *The Recreative Function:* Designating the operation of materials that are to result in tastes, sentiments, and interests.

VI. *The Interpretive Function:* Designating the operation of materials that are to result in attitudes, "insights," or perspectives.

The implications of these six rubrics will be discussed in detail in the following chapters.

4. The classification of values is not so simple. The difficulty lies in selecting a principle of grouping that will have sole reference to the social criterion, or to any other single standard representing the ultimate aim of education. In order not to multiply terms needlessly, the rubrics of value that have been commonly employed will be used, although the writer will not attempt to justify them upon the basis of any rigid principle of classification.

(*a*) *The Utilitarian Value.* — The criterion of utilitarian value, as the term will be used in the subsequent discussions, is the availability of the conduct-controls resulting from the operation of educative materials to promote the *economic efficiency* of the individual. By economic efficiency is meant the capacity of the individual to meet successfully the basic problems involved in earning a livelihood, — the problems of food, shelter, clothing, and the like.

It is assumed that the socially efficient individual will be economically efficient, — that he will be able to "pull his own weight" in the struggle for life, either directly by engaging in a productive activity, or indirectly by inspir-

ing, encouraging, or educating others to increased productive activity. This value is synonymous with what Ruediger[1] terms the "practical" value.

5. It is needless to say that any one of the types of function discussed above may realize a utilitarian value. From the point of view of strict utility, however, — from the point of view of meeting the immediate needs of securing food, clothing, and shelter, — the two types of control that are most important are (1) habits (and especially habits of skill), and (2) knowledge (facts, principles, ideas, and meanings); consequently the important utilitarian functions are the training and the instructional. Other controls are certainly contributory to the ends named in greater or less degree. Ideals, prejudices, attitudes, and perspectives will frequently, in the following pages, be accorded a utilitarian value. In general, however, the value of these controls is not narrowly utilitarian.

The pupil learns in school the fundamental number-facts. It may be reasonably predicted that he will find almost daily use for some of these. The value of the habits thus formed is consequently utilitarian in the narrow sense. Again, the pupil learns to associate printed symbols with their sound equivalents, and here, also, the utilitarian value is obvious. In geography, he learns the products of different countries; here the value may be utilitarian, although the chances are that the average pupil will have but few opportunities to apply such knowledge directly to the economic problems of life. Its inclusion among the subjects of common school education must, therefore, be justified upon another basis.

[1] Ruediger, *op. cit.*, pp. 122–126.

Utilitarian values can be ascribed, therefore, only when the habits formed, or the knowledge imparted, or the ideals and prejudices engendered, can be clearly shown to be essential to the solution of some economic situation which the pupil will in all probability face in later life. The value is high in proportion as the situations demanding the functioning of the conduct-controls will be either of fundamental significance or of frequent occurrence in economic life. The value is small when the chances for such functioning are few in number and when the situations are of slight economic significance.

6. Professor J. W. A. Young [1] has drawn a valuable distinction between *direct* and *contingent* utilitarian values, — direct values being ascribed to materials the products of which will inevitably find a useful function; contingent values being ascribed to materials the products of which may be useful if one chances to meet situations where their functioning is demanded. Thus mechanical drawing is of contingent utilitarian value to the boy who may become a draughtsman; reading, on the other hand, may be assumed to be of direct utility to every one. This distinction will be referred to later, although the discussions of the present volume, being largely limited to general as distinguished from vocational or specialized education, will not lay great stress upon contingent values.

7. (*b*) *The Preparatory Value.* — Controls that do not function directly in economic situations may pave the way for the acquisition of controls that do so function. This preparatory value is generally recognized in educa-

[1] J. W. A. Young: *Teaching of Mathematics*, New York, 1903, ch. ii.

tional literature and the term will hereafter be used in its customary significance.[1]

8. Naturally, one would expect to find the preparatory value represented very frequently in the elementary and secondary curriculums, and this proves to be the case. While arithmetic is utilitarian to the last degree, its preparatory value is not to be neglected. Geography, in opening the gate to history and to the natural sciences, finds one of its chief functions to be of this type. The language studies are represented in the preparatory list chiefly by reading and grammar. In the secondary school, the preparatory values become even more pronounced. Algebra and geometry find ultimate utility through applied science, mechanics, and engineering. Physics, while it possesses no small degree of utilitarian value, must also be accorded preparatory value. The languages, however, except as they lead to higher university study, must be justified upon other grounds.

It is clear that the justification of all preparatory values must be sought in the materials for which they prepare. Thus mathematics and physics are but one step removed from a very obvious utilitarian function. If Latin and Greek, on the other hand, are justified by the fact that they prepare for philology as a university study, it is incumbent upon their advocates to establish the value of philology. If they lead the way to philosophy, then philosophy must be justified, and so on.

9. *The Conventional Value.* In many cases, the materials of education can lay claim to no other value than

[1] See Ruediger, *op. cit.*, pp. 120–122.

simply that society takes it for granted that every one who is to be classed as "educated" must undergo instruction in them.

One of the best instances of a subject that has an almost exclusively conventional value is furnished by spelling. It is true that ability to spell correctly possesses a measure of utilitarian value; certainly if one's spelling is sufficiently incorrect, one's meaning is quite obscured. Incorrect spelling, however, interferes with social efficiency even if it is not so bad as to obscure the meaning. There seems to have grown up in English speaking countries, at least, the notion that incorrect spelling is a true index of illiteracy. In other words, the one thing that any one who pretends to "education" must not do is to misspell common words.

Grammar furnishes another instance of a value that is very largely conventional. While grammatical correctness is often essential to clarity of expression, it is not always so; yet expressions that are seriously ungrammatical mark one as illiterate even though clearness may not be increased in the slightest degree by the corresponding correct form. "I have went" is just as clear and unequivocal as, "I have gone"; "It is me" conveys the meaning just as effectively as, "It is I." And yet the person who habitually uses incorrect forms is *taboo* socially. Nor is "socially" used here in its narrower connotation. A person's opinions are discounted and his judgments are often distrusted if he fails to conform to conventional demands. Consequently, one's efficiency is measurably lessened: at least, the same ability would work under a much slighter handicap if the conventional demands were fulfilled.

There is scarcely a subject to be found in the curriculum of the elementary and secondary schools that does not possess at least a modicum of value from the conventional point of view. Society takes it for granted that every one shall know certain facts and principles of geography and history. The *immediate* efficiency of a given individual might not be seriously impaired even if he were ignorant of the fact that the earth is round or of the fact that Columbus discovered America. Such an individual might contribute his share to the world's work without much difficulty. He might, in other words, adjust himself effectively to his physical environment. But his adjustment to his social environment would be seriously hampered by the mere fact of his ignorance, and this lack of social harmony would, in many cases, tend to decrease his economic efficiency. It becomes of paramount importance, therefore, to reckon with conventional values and to take the steps that are necessary to realize them.

It may be that society is too prone to enlarge mole-hills into mountains in dealing with little matters of spelling and grammatical construction, and education can probably do much in the course of time to make public opinion rather more rational upon this matter. And yet a social prejudice generally has back of it some basis of necessity. If a fair degree of proficiency in spelling and a fair degree of grammatical precision in verbal expression are set up as indispensable qualifications of an educated person, we may be tolerably certain that these things are fairly good indices of one's general mental capacity. This is not to say that one who has not had educational advantages is to be considered as mentally incompetent because of the errors that one may make in orthography and syntax. It is simply to say that, given the advantages, the average individual can, without serious difficulty, learn to comply with the standard set. The test is analogous to that which prescribes ability to read

as an indispensable qualification for the admission of foreign immigrants. Reading may or may not be essential to the direct efficiency of such immigrants. Some who are unable to read might make very excellent citizens. And yet some standard is obviously necessary and the reading standard seems to be the most efficient in the long run. The same is true of the "spelling and grammar" standard which society sets as the minimal measure of efficiency for its schools. One can scarcely quarrel with it so far as it goes. The trouble is that in too many schools it becomes, not the minimal, but the maximal measure of efficiency. In other words, too many schools narrow their outlook to fit this tiny aperture. The aperture is central and fundamental, it is true, but it is none the less tiny. The part of wisdom seems to lie in recognizing the conventional values and realizing them as far as possible in connection with the realization of other more significant and vital values; but, when this is impossible, then solely for their own conventional sake and with the least expenditure of time and energy consistent with meeting the conventional requirements.

10. *The Socializing Value.* It is in the socializing of the individual that the conduct-controls developed by general education have their greatest significance. Social efficiency, as has been pointed out, implies economic efficiency, but it also implies something far more comprehensive than the ability of the individual either directly or indirectly to provide for himself food, shelter, and clothing. It means more than that he should simply fulfill the conventional standards imposed by society upon all of its members. It implies fundamentally that he participate in the social conscience, and that he apply the dictates of

that conscience to his own life as well as to the lives of his fellows.

While the instructional and training functions are not unimportant from the point of view of the socializing values, it is here especially that the other functions come into their own. It will be the task of the following chapters to indicate especially the increments of social value that may be realized in fulfilling these various functions.

CHAPTER IX

Values to be Realized in Fulfilling the Training Functions

1. If one analyzes the automatic adjustments made in the course of an average day, three large types of conduct are readily recognized. In the first place, there are the habitual responses of dressing, eating, walking, and talking, which are common to all; in the second place, there are the special habits of skill that constitute so large a part of one's waking life, and which, obviously, are individual and technical in their character; and, in the third place, there are the habitual adjustments which one makes during the leisure or nonworking periods of the waking day, which are also largely individual in character.

Each element of these three types of conduct represents a certain form of training in the largest sense of the term, — represents, in other words, a learned as distinguished from an instinctive adjustment. And yet it is surprising, at first glance, to note how small a part the formal training of the school has apparently played in the learning of these adjustments. Adjustments of the first type have been acquired largely through imitation and home instruction; adjustments of the second type have been initiated during the early years of apprenticeship to one's

trade or profession, and if any school has contributed significantly toward their acquisition, it is the professional school, the technical school, or the trade school, not the common school; in adjustments of the third type, the influences of general education may be much more readily recognized, although even here, there is a large residuum that must be attributed to the operation of nonscholastic factors.

It would be fallacious to conclude, however, that general education fails entirely to influence life from this standpoint, although the very slightest investigation will reveal a much smaller degree of direct influence than is usually attributed to the formal work of the school. To approach the question from the other side, it may be profitable to examine the various subjects of school instruction and see what training functions tend to realize the different types of value discussed in the last chapter.

2. (*a*) *The Utilitarian Value.* Of the training subjects of the elementary curriculum, there can be no doubt that those concerned with language are the most fundamental from the standpoint of utility in general education. A mastery of the commonly employed media of communication is essential to economic efficiency, and, in this case, effective mastery means automatic mastery. Oral speech is ineffective when attention must be divided by the speaker between thought and form. Written speech is uneconomical when the writer must make a similar transfer of attention. In fact, the utilitarian value that attaches to the rules and principles of grammar lies mainly

in the initiation of habits. If actual expression were consciously to be governed by continual direct application of rule and principle, it is clear that the efficiency of expression would be greatly curtailed.

From the standpoint of direct utility, however, the mere matter of *correctness* of form cannot be allotted a maximum of value. Fluency and spontaneity of language are vastly more important than mere conventional correctness. Grammatical precision influences adjustment, it is true, but the controls that it establishes must be justified upon the conventional rather than upon the narrowly utilitarian basis.

3. The habits that are involved in reading are, of course, fundamental from the point of view of direct application. The elaborate organization of social life makes the ability to translate printed and written symbols of words into their vocal equivalents absolutely essential to efficient adjustment. To-day, even the laborer who cannot read is handicapped in his daily work. The directions that he must follow, the rules of his union, the advertisements that enable him to find the best market for his labor, — all of these factors are introducing formal educational qualifications into even the humblest of human occupations.

As contrasted with the other phases of language training in the school, reading must be accorded supreme importance from the point of view of direct utility. The habits of oral expression, — which are the educative materials that have widest applicability in this connection, — can be, and usually

are, acquired with a fair degree of proficiency through informal education. To learn to read, however, requires systematic instruction of a rather strenuous nature. It is probable that certain exceptional individuals would acquire the associations involved in the mechanics of reading without such training, as recent authorities [1] suggest; but that this method can ever be depended upon for universal results is seriously to be doubted, no matter how constantly children may be brought into contact with an environment that emphasizes reading as a basic social process.

4. The automatisms that are developed by the study of arithmetic have a high value from the point of view of utility. In an elaborately organized society, where labor is minutely differentiated and where the component social elements are thoroughly interdependent in respect of the necessities and luxuries of life, the *measuring* of commodities of all sorts and the computation of values in terms of a unit of common measure are obviously prime necessities.

5. That the automatic adjustments involved in the mastery of music and drawing have a utilitarian value to the majority of pupils is seriously to be doubted. Drawing, it is clear, may have a contingent utility for pupils who enter certain specialized trades and professions, but the average pupil seems to put to very slight use the skill that the drawing instruction of the elementary school may be supposed to have given him. Closer correlation of drawing with manual training and

[1] For example, E. B. Huey: *Psychology and Pedagogy of Reading*, New York, 1908, p. 311.

with other forms of school work might lead the pupil more frequently to employ drawing as a means of expression and communication.[1]

6. The adjustments that are made automatic in manual training in its various forms should find direct application in later economic life, and this value is not only large but also general in its nature. It is a value that is important to all who live the civilized life, for the ability to use the common tools of wood working and metal working is something the lack of which the average man will feel very quickly, whatever may be his vocation; and this becomes increasingly true as machinery comes to do more and more of the drudgery of everyday life. The utilitarian value is not the only, nor is it the leading, value of manual training, but it is a value that is perhaps important enough to justify the subject in the elementary and secondary curriculums, even if other values are not granted.

It needs but the slightest reflection to appreciate the significance of this subject in the curriculum of the twentieth century. If there is one factor that dominates the civilization of to-day, it is the application of physical and chemical principles to the problem of generating, transmitting, transforming, and utilizing mechanical energy. The nineteenth

[1] In remarking upon the high average of intelligence among the rank and file of the Japanese army during the war with Russia, General Kuropatkin mentions particularly their skill in drawing: "Many of them could draw maps skilfully, and one common soldier [a prisoner] was able to show accurately, by means of a plan sketched in the sand, the relative position of the Japanese forces and ours." — (*McClure's Magazine*, 1908, vol. xxxi, p. 649.)

century left us with a rich heritage of principles and devices by which the forces of nature may be controlled and directed toward the improvement of human life. It remains for the education of the twentieth century not only to transmit carefully these principles and the ideals that made them possible, but also to disseminate in as wide a circle as may seem profitable the habits of skill which are essential to the effective use of mechanical devices through which these principles and ideals affect the workaday life.

7. (*b*) *Preparatory Value of Habits.* The language-habits, and especially those connected with reading, are of obvious significance from the preparatory point of view. To teach the child to read and write is to put him in command of the implements through which a large part of his later education is obtained. To insure the immediate association of ideas with written and printed symbols is one of the most important tasks that the elementary school has to perform.

8. The number arts possess a smaller measure of preparatory value, although by no means an unimportant measure. The efficiency of the quantitative work in the sciences depends more fundamentally upon the elementary number arts than upon the mastery of the more advanced mathematical subjects. The preparatory value is not large enough, however, to overshadow the utilitarian value of elementary arithmetic.

9. The skill that is represented by the ability to draw is more important from the preparatory than from the utilitarian point of view. The use to which this skill may be put in clarifying the pupil's conceptions of the

objective sciences is recognized by the teachers of these sciences. One may well believe that there should be, in the teaching of drawing in the lower schools, a more explicit recognition of this preparatory value.

10. Manual training, like drawing, may be made to possess a goodly measure of preparatory value in general education. Aside from the contingent value that it has for the pupil who is to enter one of the engineering professions, the ability to manipulate tools and materials efficiently will be of service in the study of the physical sciences, and in the constructive activities which, like drawing, serve admirably to clarify one's conceptions in various other subjects. Again, what is needed is a more explicit recognition of this value and an attempt to utilize in other subjects the skill which the teacher of manual training has gone to such pains to develop in his pupils.

11. The training subjects of the secondary curriculum are chiefly English composition, the elementary stages of foreign language study, and certain stages in the mastery of secondary mathematics. While the habit-forming activities in the composition and mathematics classes can probably be more equitably justified upon another basis, the drill in early language study is primarily preparatory in its value. This means, of course, that the ultimate justification must be sought in the value of the subjects for which it prepares. There is good reason to believe that much of this work does not lead, with the average pupil, to that appreciation

of the literatures of foreign language which would be the most obvious source of value. In the case of Latin, as will be pointed out later, contemporary opinion seems to lean toward identifying secondary Latin with English composition in so far as its value is concerned. That is, the justification for Latin in the high schools and as a subject of general education is largely to be found in the practice in English composition which the work of the Latin classes involves.

12. (*c*) *The Conventional Value of Habits.* The importance of forming the conventional habits of language, particularly with reference to spelling and grammatical correctness, was referred to in the last chapter. In addition to these obvious conventional requirements, a group of habits equally important from the conventional point of view is represented by what is termed "etiquette" or good manners. The precedence which is accorded to old age and to womanhood could have no justification from the point of view of pure utility. When I stand aside to let a lady or an older man precede me through a doorway, I do not do it because the person in question could not get through just as effectively if I went first. My standing aside is a conventional adjustment sanctioned by society as a mark of respect.

But there is a vast difference between the conventions of etiquette and the conventions of language. It is true that the former, like the latter, indirectly influence one's social and economic efficiency, since failure to comply with conventional custom would seriously

influence the attitude that others take toward one. But the adjustments of good etiquette have another and a more fundamental sanction. They crystallize the ideals of social behavior that the race has accumulated and sifted through its long experience. Respect for old age and respect for womanhood are ideals or prejudices which constitute a most important part of our social heritage. One sometimes thinks of these as purely formal requirements; as a matter of fact, the attitudes and ideals that they express are among the most precious parts of the race inheritance; they have cost pain and struggle and suffering; they are conquests, even as the great scientific principles, even as the most inspiring creations of art, are conquests.

13. (*d*) *The Socializing Value of Habits.* The conventional value of the habits of etiquette and gentle manners really represents socializing values. Much more important in this immediate connection, however, are the numberless little habits that are termed "moral." These include the various automatic responses that may be summed up under the general heads of cleanliness, honesty, regard for the rights and feelings of others, obedience to law and to constituted authority, and the like. The specific adjustments representing these virtues must be made thoroughly automatic early in childhood if the virtues themselves are later to be generalized as ideals and prejudices. It is in connection with ideals and prejudices, however, that these virtues may be most profitably discussed, hence we may leave them

for the present with the understanding that the effective generalization of the virtues depends primarily upon the thoroughly automatic character of the specific responses that represent them.

14. The work of habit-building must always be accorded the most important place in elementary education. That habits formed in the school may not function in the situations of later life is clearly apparent. That training *may* not "spread" beyond the limits of the specific function trained suggests the advisability of limiting the strenuous processes of habit-building (1) to those automatic responses that will be of unquestioned service, and (2) to those responses that may serve as concrete bases for the later development of concepts and ideals of conduct.

There are certain respects in which reaction ought, from the earliest possible moment, to be thoroughly automatic and mechanical. It is to the formation of these specific habits that elementary education especially must direct its energies. The fault of American schools to-day lies, not in the mechanical grind that they are popularly supposed to represent, but in the inadequacy of the really small measure of drill work that is attempted. It is here that American schools are weak as compared with the schools of foreign countries, and notably those of Germany. In the basic training which must stand as the foundation of all future advancement, the progress that is made year to year in American common schools is discouragingly small.

The cause of this condition is probably to be sought in the material prosperity of America during the last three decades. The relaxation from the strain and effort that characterized the life of an earlier period has found one expression in the demand for shortened hours and less "drill," less strain, and less insistence upon adequate habit-building in school work. The public protests against anything approaching the rigor of German common-school methods, and yet America must either adopt methods of training that are equally effective, or consent to take second rank in both industrial and cultural achievement. In education as in all other departments of life, you cannot make bricks without straw; and among nations as among individuals, success and preëminence can be attained only by those that are willing to "pay the price."

CHAPTER X

Values to be Realized in Fulfilling the Instructional Functions

1. (*a*) *Utilitarian Values of Ideas, Facts, and Principles.* If the elementary and secondary curriculums are examined with reference to the economic value of the facts and principles that they comprise, a condition is revealed that is somewhat similar to that discovered in connection with habit. Certain ideas, facts, and principles are directly applied to life-situations by a majority of the pupils undergoing school instruction; but these are comparatively few in number, when considered in relation to the range of subject-matter taught.

2. The *instructional* subject of greatest utility in the elementary curriculum is doubtless arithmetic. The pupil who has mastered the principles of percentage, for instance, is enabled to meet adequately certain situations in life that might otherwise baffle him. The emphasis here is, of course, upon the word "principles," and we are speaking of the conscious application of such principles through a judgment-process. The so-called "facts" of arithmetic, as was indicated in the last chapter, are very largely automatisms, the operation of which requires a minimum of judgment; in fact, they operate the more effectively the less judgment is involved.

3. Upon the side of language-instruction, it has already been pointed out that many of the materials employed function mainly through the medium of habit. There are some grammatical and rhetorical principles, however, that undoubtedly help one in expression. Grammatical expression, generally speaking, is efficient expression, — efficient in that it conveys meanings effectively. But the number of grammatical principles that are thus consciously applied is probably comparatively small, — for the average educated man (speaking English) perhaps not more than eight or ten.

4. The subject of geography seems to present a similar paucity of economically usable facts and principles. If the average man should enumerate the occasions upon which he applies geographical knowledge (beyond the few simple facts which he would easily gain without formal instruction) he would be surprised to find how small a part geography plays in his workaday life. When he travels, or when business interests lead him to deal with remote sections of the country, he may find himself recalling map images, or stimulating his memory for place and location data. But under ordinary conditions, as far as direct application is concerned, there is very little that he really needs.

5. The situation with regard to history is similar to that with regard to geography, — perhaps even more marked with reference to the narrow field in which facts may be applied to economic situations by the average

individual. Spencer,[1] it is true, maintained that the study of history ought to be especially valuable from this point of view. He criticized severely the customary methods of teaching history on the ground that they failed to establish "principles of conduct, which is the chief use of facts." He contended that historical facts, as presented in the schools of his time, were not made the basis for inducing such principles. "Read them, if you like, for amusement," he suggests, "but do not flatter yourself that they are instructive."

Although historical teaching has been greatly improved since Spencer wrote his Essays in Education, it can hardly be maintained that the improvement has followed the line suggested by his criticism. The materials of history, as history is taught in the elementary and secondary schools to-day, have very little direct value in yielding generalizations that may be consciously applied to the solution of economic problems. There are, it is true, a few great, universal truths that may safely be drawn from historical data, but there are few authorities upon the teaching of history who maintain that the development of these few truths constitutes the chief value of the study. Indeed, the authorities are practically agreed that it would be unwise to attempt the teaching of history from this point of view.

For example, Langlois and Seignobos [2] strongly emphasize this point: "It is an illusion to suppose that history supplies

[1] Spencer: *Education*, New York, 1895 (Appleton's ed.), pp. 64 ff.

[2] *Introduction to the Study of History*, pp. 319 f.

information of practical utility in the conduct of life, lessons directly profitable to individuals and peoples; the conditions under which human actions are performed are rarely sufficiently similar at two different moments for the 'lessons of history' to be directly applicable. . . . It has an indirect utility."

Froude [1] also expresses himself very skeptically with regard to the utilitarian value of history. "It often seems to me as if history was like a child's box of letters with which we can spell any word that we please. We have only to pick out such letters as we want, arrange them as we like, and say nothing about those that do not suit our purpose."

Logic warns us that an inference from analogy is always likely to be misleading unless one is certain that conditions are identical in the two cases. One might, for example, maintain that the history of Rome is a warning against our present tendency toward luxury and extravagance. Luxury and extravagance, it may be urged, caused the downfall of Rome; consequently, let us look well to the same symptoms in our national life to-day. The danger may be real enough, but the analogy alone does not prove it. In Rome extravagance and luxury were founded upon the institution of slavery, slavery begets idleness, and it is idleness that enervates. But the luxury of modern life is founded not upon slavery, but upon strenuous achievement. With all of our prosperity, there has been no visible tendency toward idleness. Thus what seems to be a prime controlling condition in Roman degeneration does not exist in any appreciable measure in the situation that now confronts us.

Again, one might infer from the facts of English history that the policy of free trade, which has unquestionably promoted the commercial prestige of England, would similarly

[1] J. A. Froude: *The Science of History*, p. 66.

advance the commercial prestige of any other country. But one's opponent could easily point to the commercial progress that Germany has made in a much shorter period under a policy of high protection. This does not mean that free trade is either good or bad from an economic standpoint. It simply means that one is unable to draw final conclusions from historical data.

It is not to be inferred from what has been said that a knowledge of history has no place in education for citizenship. Some historical knowledge does influence political development, and influences it profoundly. But the transition from theory to practice is not through a direct channel, — is not a matter of direct application of principles and generalizations to existing situations.

6. In Spencer's arrangement of the subjects of instruction, following what he considers to be the order of their importance, physiology stands first.[1] "We assert," he says, "that such a course of physiology as is needful for the comprehension of its general truths and their bearings on daily conduct, is an all-essential part of a rational education." Certainly one might assume that, if any knowledge imparted by the schools should be frequently applied by *all* who receive the school's instruction, it is the knowledge of physiological principles, especially the knowledge of those principles that are primarily concerned with the preservation of health. And yet the fatuity of most of the instruction in physiology and hygiene is a by-word among educators. Recent

[1] Spencer, *op. cit.*, p. 43.

improvements in the methods of teaching, and especially in the content, have done something toward the realization of Spencer's ideal, but the most important results have been gained either in the field of specific habit-building, or in connection with the social rather than with the purely utilitarian values.

One of the most noteworthy attempts to effect a change in human conduct through the direct inculcation of facts and principles is represented by the almost universal requirement of "temperance physiology" in American schools. The failure of "temperance physiology" to work temperance reform is one of the most damaging evidences against the efficiency of didactic methods of instruction. Men *can* be made to see the effects of intemperance in a way that will influence their conduct. John B. Gough and other temperance reformers certainly knew the secret. The agitation of the past few years in the South and Middle West has been startlingly efficient. What is the difference between these successful movements and the miserable failure of "temperance physiology" in the schools? It will be the problem of a later chapter to seek an answer to this question.

7. In the other instructional subjects commonly taught in the elementary school curriculum, there seems to be scarcely a trace of direct utilitarian value, in so far as the immediate application of facts and principles is concerned. Music, drawing, and manual training are (as now taught) primarily habit-building subjects. Nature study in rural schools, where it can be closely related to practical problems in agriculture, may be made to have a direct value; as taught in the majority

of schools, however, its value, whatever it may be, is certainly not of this type.

8. On the whole, then, the subject-matter of the contemporary elementary curriculum, in so far as it lays the foundations for the application of facts and principles through judgment processes, cannot be said to possess direct utilitarian value in marked degree. Aside from a relatively few important principles of arithmetic and formal grammar, and the very simplest facts of geography, the only subject that is distinctly utilitarian in its nature is physiology, and in this, as we have seen, the direct value is very infrequently realized.

9. With regard to the secondary curriculum, the situation is more complicated. The subjects of instruction are more numerous, there is a differentiation of courses that prevents all pupils from undergoing the same instruction, and, under the present organization of secondary schools, there are many subjects which are technical and vocational in their character and which, consequently, possess a large measure of utilitarian value. Aside from the latter courses, however, it would seem that direct applicability is quite as rare a characteristic of the facts and principles composing the secondary curriculum as it is of the elementary subjects.

10. The teaching of the mother-tongue in the high school commonly includes rhetoric, composition, and literature. The science of rhetoric attempts to develop principles that may be directly applied in improving the efficiency of expression; consequently, this subject may

be said to possess utilitarian value. Composition aims at fixing habits, and its materials are, therefore, not to be included in our present discussion. Literature is not taught for the purpose of impressing facts and principles, and is likewise excluded from present consideration.

11. The teaching of modern foreign languages is important from the utilitarian standpoint in England and especially upon the continent. In the United States the practical advantage of a speaking mastery of an alien tongue is not great. For some students, a reading mastery would be extremely valuable, and yet, if the teaching of modern languages is justified solely by this factor, it can safely be said that a vast amount of time and energy and money is being expended for a very slight return. It is very rare for university instructors to assign reading in French or German, even to advanced undergraduate classes, although practically every member of such classes has had at least two years of instruction in one or the other of these languages. It would be interesting to determine how much reading in foreign languages will be done during the next five years by the students who receive baccalaureate degrees at the next commencement from the typical American universities. If this is true of the modern languages, it is scarcely probable that the ancient languages can establish a claim to a direct function, except through the practice that they involve in English composition.

12. Secondary mathematics has an obvious contingent value to a proportion of its students, — for those, namely,

who will have need to apply the facts and principles gained to the various branches of engineering. The average secondary pupil, however, will, in all probability, never use the specific knowledge of algebra, geometry, and trigonometry after he has left the school. New and improved organization of secondary sciences may perhaps make it possible to turn much of the mathematical proficiency developed in algebra and geometry classes to the solution of everyday economic problems arising in the life of the average individual, but so effective a correlation is not to be found in the high schools of to-day.

13. At first thought, secondary science would seem to be a most favorable field for the realization of direct economic values. The problem of science is to reduce the phenomena of the world about us and within us to the operation of law, — to bring the forces that constitute our environment under the control of comprehensive principles. What is more natural than to assume that a mastery of these principles would enable one to adjust oneself to these forces more effectively than would otherwise be possible? One must deal constantly with physical forces, whatever be the type of life that one leads, — and yet how many men and women who have completed courses in secondary physics ever apply the principles that have been gained to the conduct of their affairs? For the average man, the adjustments which involve an acquaintance with physical principles are made on the basis, not of principles gained in formal study, but of those which are either derived empirically from

experience, or gained through imitation. For all ordinary purposes the empirical or imitative acquaintance with the lever, the wheel, the pump, and the other devices that illustrate physical principles seems to be quite sufficient. Similarly with the other sciences. One learns empirically the phenomena of combustion, fermentation, and the like, without reference to their underlying chemical principles. One may plant seeds, and grow crops, and reap harvests, with obvious success, without understanding the biology of the processes. So far as the influence of scientific knowledge upon such adjustments is concerned, it has been, under the prevailing methods of teaching secondary science, practically *nil*. Aside from Spencer, indeed, very few of the authorities who have discussed the values of secondary science have emphasized direct utility as a leading aim.[1]

There is, at the present time, however, a marked tendency so to reorganize the scientific work of the high schools that a direct utilitarian value will be more frequently realized. The introduction of specialized courses in agriculture, mechanics, and household science cannot fail to have a reflex influence upon the teaching of the basic sciences, emphasizing their practical phases, showing at every point the large improvement and economy that come from a rational rather than from an empirical procedure, and, above all, giving the pupils actual prac-

[1] Cf. Huxley: *Science and Education* (Appleton's ed., 1899), pp. 38–65, 134–159; Lloyd and Bigelow: *The Teaching of Biology*, New York, 1907, Pt. I, ch. iii, Pt. II, ch. i.

tice in the application of principles to everyday problems. As will be pointed out in a later chapter, there are good reasons for predicting that the secondary sciences of the near future will be quite different in organization and content from what they are to-day, and that, in this readjustment, the ends of utility will secure a more effective recognition.

This does not mean, however, that the utilitarian value will come to be considered the exclusive or even the dominant value of secondary science. It means rather that the potential applicability of the sciences will be brought into function just as far as it is possible to fulfill this end without interfering with the realization of the more important values.

14. The non-vocational subjects of the secondary curriculum, — history and civics, — may be dismissed briefly. The utilitarian value of history has already been found to be slight. Civics, on the other hand, is commonly justified solely upon the basis of its utility in actual adjustment; but this justification depends upon the socializing value of civics rather than upon the direct economic value.

15. This brief review can scarcely fail to impress one with the very slight direct economic value of the great mass of facts and principles that are taught in the elementary and secondary schools. It would be folly to conclude that these materials are devoid of value; but their value, whatever it may be, must be sought in another source. In view, however, of the admitted paucity of

directly applicable facts and principles in the curriculum, the following propositions may be laid down as possible guides to practice.

(*a*) If the facts and principles that are applied directly to the economic situations of life are gained principally either through the forces of informal education, or through the type of formal education that we term vocational or technical, it is extremely likely that these facts and principles are highly specialized. Consequently, any attempt to limit the curriculum of general education to those subjects possessing indisputable utility will result in giving to many individuals specialized knowledge for which they will have no practical use, while, at the same time, such individuals will miss those values, not utilitarian, but none the less important, which may be realized by a curriculum of another sort.

(*b*) General education, however, has another duty with regard to direct economic values in addition to imparting those facts and principles that will be applied by all of its pupils. Although education for utility must be largely specific, general education can influence specialized efficiency in three ways: (1) it may train pupils in the art of finding the specific facts and principles that may be of value in solving the problems of their lives; (2) it may train pupils in the art of mastering such facts and principles once they have been found; and (3) it may train them in the art of applying such facts and principles once they have been mastered. In other words, general education should teach pupils how to use books and other

sources of information; how to study; and how to apply. If it concentrates upon these problems, making use of every possible means of impressing useful knowledge without forgetting that most utilitarian information is very specific in its character, it will do vastly more to enhance the utilitarian values than by loading its curriculum with materials that have either a temporary applicability or an applicability that is limited to comparatively few individuals.

16. (*b*) *The Conventional Value of Knowledge.* Very few facts, principles, and meanings are exclusively conventional in their value. Certain groups of principles, such as those forming the subject-matter of formal grammar, may be justified because it is expected that they will ultimately work over into habits which are important chiefly from the conventional point of view. The facts of geography and history have also a large measure of conventional importance, but there are comparatively few conventionally-important facts relating to these subjects that cannot be included in the realization of other and more important values. Certain facts usually acquired in the study of literature (dates and places of birth of authors, names of important books and characters) have a goodly measure of conventional value; but these facts may also be made to realize other values; hence the fulfillment of the conventional demands becomes only an incident and not an explicit aim in their acquisition. The conventional value of mathematics, beyond the merest rudiments, is admittedly slight.

17. (*c*) *The Preparatory Value of Knowledge.* This rubric is very much more important. The development of concepts or meanings in the elementary stages of teaching any subject is obviously justified very largely because of the preparatory value of these concepts. Thus in all of the content subjects of the elementary curriculum, the question of preparing for later study is of paramount importance. The development of adequate meanings makes possible the short-circuiting of the later educative processes, — makes possible what may be aptly termed "vicarious experience." Instruction through language is the most effective and economical method of transmitting race-experience, — provided, of course, that the words which language employs actually work back into the experience of the individual. Unless this precaution is taken, such instruction is worse than useless.[1] A very important part of the teacher's function in the elementary stages of instruction, then, is to seek out these fundamental concepts that the subject employs and, by bringing them down to the level of actual experience, gradually to develop the meanings which constructive thinking and vicarious experience will later employ.

18. (*d*) *The Socializing Value of Knowledge.* This has been so adequately treated by Ruediger [2] that an extended discussion would be superfluous in this place. The educative materials that have fundamental importance from the social point of view are obviously ideals and

[1] Cf. Chapter III.

[2] Cf. Ruediger, *op. cit.*, pp. 127 ff.

prejudices. But, as was shown in Chapter IV, ideals and prejudices function predominantly in supplying aims and purposes. Guides to the realization of these purposes must be furnished by knowledge and it is in this connection that the socializing value of knowledge is of fundamental importance.

The distinction that has been made between knowledge and ideals is nowhere more clearly apparent than in this connection. One might acquire information regarding civic organization, social hygiene, good government, and a host of other socially important topics, but unless one were inspired with powerful socializing ideals, the knowledge would be a luxury without a purpose. Similarly, one might be possessed of the strongest social motives, and still be unable to realize one's aims because one lacked the facts and principles that must be interpolated as means to ends. The failure of mere knowledge to work social reforms is too obvious to need discussion. The failure of unintelligent enthusiasm has been painfully apparent in connection with the well-meaning but often futile attempts that have been made to eliminate the undesirable conditions represented by political corruption, child labor, the miscarriage of justice, and the social evil.

There is no subject of instruction in either the elementary or the secondary curriculum as at present constituted that cannot be made to realize a rich socializing value. Geography may develop the laws that govern the distribution of population, the growth of cities, the sources of the supply of economic necessities; it may make the pupils acquainted with the conditions under which the people of other countries live and work; it may lay down

the fundamental principles governing commerce, agriculture, and other industries. These principles may be quite without value in the narrowly economic adjustments of the pupil's later life; it will depend upon the presence or absence of social ideals whether the process of instruction will repay the time and the effort which it involves. The facts of history will probably find a more equitable justification in connection with the interpretive function, but in so far as fundamental principles of social life may be drawn from historical data, their socializing value may be richly realized. But again the realization of this value depends upon the effective functioning of the socializing ideals.

Physiology and hygiene find their most important justification under this rubric. Cleanliness and health are of economic importance to every individual, but this importance is quite overshadowed by their social significance.

In connection with the study of arithmetic, there is an important socializing value that has not hitherto been sufficiently realized. The chapters of commercial arithmetic that give the pupil an acquaintance with such commercial activities as banking, insurance, taxes, stocks and bonds, partnerships, corporations, and the like, are vastly more important from the socializing point of view than merely from the narrowly utilitarian aspect. The recent tendency to eliminate many of the chapters of elementary arithmetic has been dictated by a short-sighted policy. Because the principles treated in these

chapters are of questionable direct utility to the average pupil, it has been assumed that they possess no value. This point will be referred to under the discussion of the interpretive functions.

19. In spite of the wealth of socializing materials in the present elementary and secondary curriculum, there is a need for changes that will still more strongly emphasize this factor. The study of agriculture, for example, is primarily significant because of its socializing value. The principle of conservation lies at the very root of social welfare, and this principle can be nowhere more effectively developed than in connection with agriculture. From this point of view, the inhabitant of the city, as well as the farmer, needs a knowledge of agriculture. The present emphasis upon the importance of utilizing the educative materials of the child's immediate environment is dictated very largely by economic rather than by social considerations, but even here the clearest justification of such a policy is social. So long as this emphasis does not tend to create sectionalism or in any way to unfit the individual to adapt himself to a changed environment (and this danger is very slight) the movement is an important step in the right direction.

CHAPTER XI

Values to be Realized in Fulfilling the Inspirational Functions

1. In discussing the remaining functions of educative materials, the emphasis will be very largely upon the socializing values that the fulfillment of these functions may realize. This is not to imply that these functions are unimportant from the point of view of the utilitarian and preparatory values. Aims, motives, prejudices, tastes, attitudes, and perspectives certainly influence profoundly one's economic adjustments, and certainly influence profoundly one's acquisition of other subjects. But it is in connection with their socializing values that the subjects now to be discussed must make their chief appeal for recognition in the curriculum of general public education.

In view of the fact that the inspirational and instructional functions have not hitherto been explicitly differentiated in the educative process, the present chapter will attempt a rather more detailed analysis of the inspirational function, as such, than was attempted in connection with the training and instructional functions. This will, in a measure, amplify the more cursory treatment of ideals which was presented in Chapter IV.

2. It will be remembered that an ideal or an emotionalized standard was defined as an idea which was highly emotionalized. In essence, it is an idea that controls conduct in virtue of its emotional "warmth" rather than in virtue of its intellectual clearness, or in virtue of the accuracy with which it mirrors some environmental condition.

The distinction is difficult to define in accurate terms, but it is clear enough from the practical standpoint. A man may *know* or *believe*, as a matter of intellectual judgment, that civic purity, for example, is essential to the highest type of civic life; but even with fraud and corruption rife in the local politics of his community, he may not make the slightest effort toward remedying conditions; in other words, the intellectual belief is not sufficient in itself to spur him to action. Suppose, however, that civic corruption menaces some fundamental interest of his life, — threatens to destroy his business, or reduce the value of his real estate, or invade his home; immediately his *idea* of its evil character becomes a strong positive *ideal* in favor of civic virtue which incites him to effort toward its realization. The emotional force engendered by the stimulation of a fundamental instinct (in this case some form of the instinct of self-preservation) has gathered about the idea and turned it into a definite, dynamic standard, — a positive prejudice in favor of a virtue, the rationality of which he has always admitted.[1]

[1] "Compare the purely intellectual, parrot-like belief of the citizens of any French town with the faith of a Dominican monk. The latter,

One of the best examples of this vitalizing of an idea is to be seen in the temperance movement, especially in the South. Through a combination and summation of circumstances revealing very clearly the menace to business interests, to the welfare of the home, and even to life itself which is involved in the wide extension of the saloon influences, a very forcible prejudice in favor of prohibition has grown up. This has been increased by many other factors, of course, but there is little doubt that its effective appeal came first through the stimulation of certain fundamental instincts and the emotional effects which followed.

3. An ideal or a prejudicial attitude may be engendered through forces of different types, but this vitalizing emotional element is always the essential ingredient. Self-interest is probably the most effective source of such standards, because self-interest is only another expression for the most fundamental and basic of all instincts, and *every emotion must have its instinctive core.* That the more refined and etherealized ideals may influence con-

because he feels a religious truth, is able to sacrifice himself utterly, deprive himself of everything that the world holds dear, accept poverty and humiliation, and lead a severe, hard life. The citizen whose belief is merely intellectual goes to mass, but feels no sense of repugnance at his egregious selfishness. He is rich, but he works a poor servant pitilessly hard, and gives her scarcely enough to eat while demanding the utmost of her service.

"Compare the lightly uttered socialistic opinions uttered by a demagog, who denies himself no pleasure and spares no expense to gratify his vanity, with the socialism felt by a Tolstoi who, though possessed of every gift, — noble birth, fortune, and genius, — yet lives the life of a Russian peasant.

". . . Ideas by themselves do not constitute a force . . . they are obliged to borrow from feelings the force which they lack." — J. PAYOT: *The Education of the Will*, trans. S. E. Jelliffe, New York, 1909, pp. 62 f.

duct profoundly, there can be no doubt; but that their operation is comparatively rare as compared with the more primitive standards, is equally clear.

4. Next to the individualistic instincts as effective agencies in forming ideals, are to be ranked the sex-instincts and the parental instincts. Ideas vitalized by these fundamental feelings are directive over conduct in a most imperious manner. Such words as fidelity, honor, chastity, self-sacrifice, and the like, are packed with content which it is difficult to formulate in definitions for the very reason that definitions express intellectual analyses; the meaning of these words is bound up very largely in affective or emotional factors. Nevertheless, they have an intellectual content. One *knows* that conjugal fidelity means a certain control of conduct; one is perhaps ready to admit, from the purely intellectual point of view, the necessity of conjugal fidelity to the integrity of the home, and the necessity of the home to civilized life; but one might *know* these things and still fail to *idealize* fidelity. The effective ideal, again, must have back of it a powerful feeling.

The instinctive core of sympathy that runs through the higher types of social ideals is probably closely related to the sex and parental instincts. It is clear, at least, that such ideals do not function freely prior to adolescence, although the sporadic instances of impulsive sympathy in even very young children would prevent one from identifying the sympathetic instinct completely with the sex and parental instincts.

This, however, does not prevent us from raising the question, What are the ingredients of effective social ideals from the standpoint of the intellectual elements involved? Given the necessary instinctive basis for patriotism (whatever that basis may be) the important thing for education is to know how the ideal of any specific sort of patriotism can be developed.

5. The more general instincts of curiosity, play, and imitation (the "adaptive" instincts) lie at the basis of ideals that possess fundamental social value. It is a proverb that curiosity is the root of all knowledge. Another way of formulating the same truth is to say that the impulse of curiosity grows into the love for investigation — the "passion for truth." The influence of this ideal is clearly seen in the work of the great scientists. Again it is hard to determine how much of its force is due to the strength of the original impulse, and how much is due to the modifying influence of instruction and training. Certain it is that some men are "born" investigators, and that no accidental circumstancing of environments could keep them from following in one field or another the career of investigation. But while these may be the greatest investigators, it does not follow that education and training may not make efficient investigators out of those who have but a moderate capital of inherited inquisitiveness.

6. The instinct of play unquestionably lies at the basis of the ideals of sportsmanship which have no unimportant function in the scheme of civilized life. Here, too, the

strength of the instinct may vary. Some men have it in only a weakened form; with others it seems to be quite satisfied with the pastimes of childhood; but there still remain a large majority who carry play in one or more of its idealized forms over into adult life.

The transition from play instincts to play ideals illustrates in a typical manner what is probably the genesis of all ideals. The play impulse, as seen in its instinctive form in early childhood, expresses itself in the making of certain adjustments that have been useful in the history of the race (the fighting adjustments, the hunting adjustments, the hiding adjustments, etc.) without consciousness of their purpose, and for no other end than the gratification of the impulse as felt. It is clear that an instinct impelling the child to make such adjustments would be extremely valuable in preparing the individual for life under primitive conditions. It was in this vicarious fashion that the child was in part trained for the essential pursuits of adult life. With the passing of primitive conditions, the pressing need for this training has been greatly diminished, but the instincts still persist, and demand, generation after generation, the same form of gratification. Civilized life, however, finds that they still subserve an important social purpose: they impel the individual to vigorous exercises on the one hand and to recreative relaxation upon the other, and these factors do much to counteract the unhealthful tendencies of the indoor life and the sustained concentration demanded by civilization. But with a perception of this end, the activity loses, of course, its instinctive and spontaneous character. An intellectual element has been superimposed upon the basic substratum of feeling. It is the combination of these two forces that constitutes an *ideal*. The intellectual elements furnish the meaning of the ideal; the core of instinct gives it force and vitality.

7. The ideals that grow out of the instinct of imitation are less easily to be identified. Doubtless the imitative impulse contributes no small share to the effective force of the ideals of sport. In its own right instinctive imitation may justly claim to be the parent of ideals of constructive imitation. Instinctive imitation is expressed in the impulse to copy the adjustments that others make without reference to the purpose of these adjustments. But when the blind impulse is illuminated by the consciousness of purpose, — when the individual sees that the imitated movement gains some result valuable in itself apart from the mere pleasure of making it, — an intellectual element is introduced and the transition from impulse to ideal has begun. The instinct still furnishes the force, but the idea determines the meaning — changes, transforms, the reference of the adjustment. This imitation becomes the basis of that class of ideals which is represented by the higher forms of emulation and example. It expresses itself concretely in the adolescent's personal ideals, — in the selection of individuals (generally adults) whom he strives to resemble.[1]

8. There are still many ideals for which it is very hard to find basic instincts, and some instincts for which corresponding ideals are not readily suggested. The ideal of reverence, for example, may be traced back to the instinct of fear, but the explanation of reverence merely in terms of fear (no matter how highly one may idealize fear)

[1] Cf. E. A. Kirkpatrick: *Fundamentals of Child Study*, New York, 1907, p. 195.

seems hardly satisfactory. One may, perhaps, be justified in assuming a basic instinctive reverence, — a vague feeling of helplessness and dependence, — out of which, through intellectual accretions, the highest ideals of reverence are developed. Whatever the explanation, the powerful influence that these ideals exert is plainly apparent. Religious education needs especially to gain light on this problem, for religious education in the past has not always developed these ideals effectively; in fact, it is hardly too much to say that negative ideals have frequently issued as a result of shortsighted methods.

9. The ideal of achievement, — the unreasoned impulse which drives one to complete a task that has once been undertaken, — must be ranked as one of the most powerful and effective of all controls of conduct. It is difficult to determine, however, what instincts furnish the impelling force. It is probably to be considered as an outgrowth of the individualistic instincts, although the sex impulses and the instinct of emulation doubtless add important increments.

10. What is the relation of the materials of education to the development of ideals? It is reasonable to believe that ideals are influenced by educative forces in two ways, — directly and indirectly. Certain ideals, in other words, may be impressed and developed as ideals; others come into function as an indirect result of instruction or training that has for its immediate purpose something that may have little superficial relation to the ideals in question. As an example of the first class, one may

instance the ideal of patriotism, which may be developed, or at least strengthened, through the study of national history. In the second class are the ideals of method which generalize specific disciplines. The present chapter will consider only ideals of the first class.

11. History, biography, literature, art in any of its forms, and religion are the chief sources of materials for the direct development of ideals. The ideals that history embodies are of two types, — *national* ideals and *universal* ideals. Both are fundamental controls of conduct, operating almost daily in common life. The community of conduct in any group of civilized people is evidence of the potency of national ideals.

Instances illustrating this point will come readily to the minds of those who have traveled in different countries. The Englishman has standards of conduct differing from those of the American, the German standards differ from those of the Englishman, the French standards from the German, and so on. The Englishman, for example, has a certain contempt for free schools; the American stakes his nation's future on free schools. This difference in educational ideals is a controlling factor in the life of the two countries. The German has an ideal of frugality and national economy that neither Americans nor Englishmen attain. He willingly obeys laws with regard to property that Americans at least would not respect. The Parisian has ideals of home life and family relations that are not acceptable to the Anglo-Saxon mind.

These differences may have some basis in the natural constitution of different peoples; but that this basis is, at best, very slight, is evident from the ease with which ideals

are changed when people of one nationality take up their residence in a foreign land. This is especially to be noted in the European immigrants who have settled in America. In two generations, at most, almost every trace of the European ideals and prejudices is completely eradicated.

Among the national ideals which distinguish Americans from other peoples are those of individual self-reliance and equality of opportunity. There are other ideals which we hold in common with other nations — especially England: civil liberty, local self-government, national unity, and representative democracy. These national ideals control the conduct of the component members of the body politic not only in those adjustments that have reference to government, but also in many little matters that concern only the individual himself. In virtue of his national ideals, the American sends his children to a free public school, and sometimes permits the public to supply them with books and other materials, even though he himself may be far better able to make the purchases than many of those who are taxed for the purpose. He may not always reason out carefully why he does this, but sometimes he does, and then his reasoning might conceivably run something like this: "Education opens opportunities that must be equally offered to all children. I can easily afford to pay for the education of my children, but to do so would be to place the free schools upon a charity basis. I may be able to purchase books for my children, but to do so would be to place free books for indigent children upon a charity basis. In either case, I should be interposing an obstacle between the mass of children and the education which is their right, for I have in effect pauperized one class at the expense of another. Therefore, to equalize opportunity, I send my children to free schools and let them accept free text-books and supplies." This is conduct that is controlled by an ideal. The ideal is "equality of opportunity." This

ideal is undoubtedly realized in America in far richer measure than in any other country, and it is this ideal that America stands for as it stands for nothing else.

Again, in virtue of his ideal of local self-government, the American citizen undergoes certain disadvantages that would not be his lot were he to adopt a centralized system of government. He taxes himself for innumerable bits of governmental machinery, — legislatures, executive staffs, judiciaries, — the function of which could be much more economically fulfilled by fewer centralized officials and representative bodies. He does this willingly, and often with a full knowledge of the disadvantages involved, because he not only believes but *feels* that, in spite of the cumbrous system, certain priceless liberties are retained by him that would otherwise be abrogated.

In virtue of his ideal of representative democracy, the American citizen intrusts his government to the hands of many individuals, although he knows that governmental efficiency is best subserved by concentrating its functions in a few individuals. The ideal determines his conduct, impels him to sacrifice a certain measure of efficiency in order that he may *feel* that his own interests have the chance of representation.

12. It is one function of the study of national history to impress these national ideals upon each succeeding generation. Certainly other forces are operative in the conservation and perpetuation of these ideals. They are expressed in the life about us, — in the institutions of society; and imitation and suggestion, unaided by formal education, would tend to perpetuate them. But their vitality and stability may be greatly increased and strengthened by the study of history, for history may

lead the child vicariously to repeat the experiences through which the ideals have developed. It was said in a former section that the direct utilitarian value of history was inconsiderable, inasmuch as the facts and generalizations of history were only infrequently applied to existing situations and then with no certainty that the predicted results would follow. It is not the facts and principles of history that the present and future generations will apply; it is rather the emotions and sentiments which these facts of history evoke in the mind of the student that will operate to determine future events.[1]

13. But the value of history is not limited to the national ideals that its study develops. Historical per-

[1] "If a boy be told to love his country, he might properly inquire, What is my country? It would not be enough to show him a list of the States, or the flag, or to name the leading politician who happened to be President. His real country has much that is invisible built into its very structure. It is Washington's long struggle to found and organize the republic; it is Jefferson's dreams of democratic equality; it is the deeds and words of men who from period to period guided public opinion and settled the national policy, of those who spread civil communities from the Alleghanies to the Pacific, who built up our industries and laid the foundations of our intellectual life. Each act in all the great drama has added its bit to the reality of the whole. . . . Physical blindness is no more unfortunate than any dimness of sight that shuts out half and more of what such parts of the world really are." — H. E. BOURNE: *The Teaching of History and Civics*, New York, 1909, p. 81.

"Why does 'nobility oblige'? Simply because the boy or man has entered into a larger realization of what he is through his knowledge of the traditions of the house. In the same way the honorable record of a regiment, of a ship of the line, the traditions of even-handed justice that surround certain courts, elevate and clarify the consciousness of the men who make up their personnel. So the boy and girl may, through the proper study of history, learn better to know themselves in relation to their community, their State, and their country." — *Ibid.*, pp. 84 f.

sonages and historical events constantly typify certain universal ideals, — certain ideals that function irrespective of national or ethnic bonds. Courage, fortitude, initiative, efficiency, foresight, — in fact every conceivable human virtue may be given a surer footing in the individual mind through the study of history and biography; although here, also, the suggestion of the immediate social environment exerts a powerful influence, — and an influence that often needs to be counteracted.

14. From what source is the emotional force essential to the vitality of these ideals to be derived? In national history, unquestionably, the instincts that are stimulated by kinship, or blood-relation, form an important factor. The virtues of Lincoln's character appeal with stronger force to Americans than to Germans because Americans recognize that Lincoln was one of them. Needless to say, the feeling of kinship can be stimulated, even though the actual blood-tie be non-existent. Community of interest is afforded by national life, and this gives rise to emotional factors almost as powerful as those that are afforded by actual blood-relationship. The figures in world-history whose sphere of activity lies outside of our own race or nation appeal to us less strongly than do our own heroes; the ideals represented by Napoleon or Bismarck will, in general, lack the emotional force of those represented by Lincoln; nevertheless, conspicuous virtues and abilities excite admiration, it matters not in whom they may be found.

15. Perhaps even more important than history in affording a medium for the transmission of powerful ideals is literature. There can be little doubt that conduct has been profoundly modified by the drama and the novel. The influence of such writers as Voltaire and Rousseau upon the French people in the eighteenth century; the influence of Dickens upon certain phases of English life; the influence of "Uncle Tom's Cabin" upon the American Civil War,—these are but few instances of the recognized power of literature.

The peculiar influence of a dramatic portrayal upon the emotions cannot be discussed at this point. The solution must be sought in part at least in the *form* or *structure* that is fairly constant throughout the realm of art; particularly, in the unity of composition and the subordination of all materials to one central theme. That this form fulfills in some way the conditions that are essential to an emotional appeal, there can be no doubt.

16. From the standpoint of *content*, however, it is clear that the basic themes with which the drama and the novel commonly deal are closely related to fundamental instincts. Love, war, struggle, failure, achievement, and triumph have the closest possible relations with individualistic and sex instincts. The novel and the drama, utilizing the form that is best adapted to reach these wellsprings of conduct, are eminently adapted to provide what may be termed a vicarious satisfaction or gratification of instinctive desires that cannot be realized directly. The boy who

is forced by circumstances to live the urban life, with its numerous restrictions which prevent the expression of his primitive impulses, finds a vicarious though weakened satisfaction in the perusal of stories of fighting and hunting. The maiden finds analogous gratification of the vicarious order in novels and love stories. Situations that are vividly imaged become, in effect, real situations. Actual adjustment to them is often initiated, — the boy's muscles become tense as he reads of the excitements of the chase; his nostrils dilate; his breathing is quickened; the physiological conditions of emotion are perfectly fulfilled. Ideas that are absorbed at this time will tend to become emotionalized, — to become ideals. Courage, perseverance, magnanimity, courtesy, charity, and a host of other virtues may, in this way, be endowed with sufficient emotional force to carry them through life as effective controls of conduct.

This, of course, is but a suggestion of what *may* happen. In a large way, the potency of literature over conduct can scarcely be doubted. In individual cases, — that is, in cases where men and women are themselves certain that they owe their ideals to literature, — a hundred other sources may have contributed as much or more. As with other environmental forces, it is difficult to determine, in every case, the precise influence exerted. A man may be absolutely certain that his appreciation of "The Tale of Two Cities," for example, led to the formation in his mind of a powerful ideal of self-sacrifice which modified his conduct in later situations. And yet his ideal of self-sacrifice might have been developed independently of this stimulus. It seems tolerably certain,

however, that even granting an innate or hereditary basis for self-sacrifice, environmental stimulus of some sort is essential to its development as an effective ideal. Unless this is true, moral education, — all education, in fact, — becomes a luxury without a purpose — a mere epiphenomenon.

17. Ideals are crystallized in other forms of art as well as in literature, — in painting, music, sculpture, and architecture. The use of these materials in formal education, however, has hitherto been limited largely to the study of pictures, and this has been prosecuted in a way that is generally far from satisfactory or effective. It is possible that a method may be devised through which the inspirational value that pictures possess can be realized in the schoolroom. Certainly one of the first steps toward the devising of such a method will be a selection of the pictures that embody ideals appealing to children. Under present conditions, the function of pictorial art in elementary education is largely limited to the intangible and rather uncertain effect which the presence of good pictures in one's environment has upon the development of that quality that we term "good taste."

18. The same restrictions apply to the ideals that are embodied in musical masterpieces, — except that here the baneful effects of what appears to be a most irrational method must first be counteracted. If there is any idealism in music, the methods of instruction that are commonly employed in the "teaching" of this subject are eminently adapted to destroy it. Music, like litera-

ture, is something to be appreciated, and appreciation in both cases may involve a certain mastery of technique. But what seems to be needed in music is not so exclusively training in the technique of singing as is now the case; some of this is possibly essential to musical appreciation, just as some acquaintance with the technique of style is essential to literary appreciation; but to attempt to develop an appreciation for the best music through the type of instruction common in the schools is about as futile as to attempt to cultivate literary appreciation through drill courses in composition alone. What is needed in both cases is (to speak in a quasi-figurative fashion) a training of the receptive capacities rather than an exclusive training of the expressive capacities. The child should *hear* the best music over and over again until it has sunk into his soul, and fortified him forever against the seductive wiles of the tin-pot jingles and the sentimental songs of the music halls. But here, too, as in the case of picture-study, the direct development of ideals is governed by laws which are very inadequately understood and hence is subject to control in a very limited degree.

19. Concerning religion as a medium for the direct development of ideals, little need be said. That the "religious experience" marks the genesis of some of the most important controls of conduct, one can scarcely doubt. The keynote of the powerful influence that religion exerts must be sought in its emotional appeal. In other words, a moral standard that is supported by

religion possesses, in virtue of this support, an emotional force that very greatly increases its control over conduct. The Ten Commandments are fundamental rules of social life. They are absolutely essential to the stability and perpetuation of society. If they were simply stated in a didactic fashion — as principles or rules — the sphere of their influence would be almost negligible. But give them concreteness and vitality by telling the dramatic story of their origin; put them forth as the imperative commands of an all-powerful Deity; clothe them with the impressive vestments of rite and ritual; associate with failure to comply with their restrictions the most drastic penalties, — and their appeal becomes universal.

This is not to say that religion exists simply or principally as a handmaiden to morality; it is simply to say that one very vital function of religion is to support and vitalize moral standards and ideals. It is this very vital function that has given religion in the past its social sanction, for society must always give an effective sanction to the institutions that are essential to its survival.

Beyond this function, of course, religion answers a fundamental need of the individual, — a need for comfort, faith, hope, and inspiration. Whether it manifests itself in a crude, animistic, or anthropomorphic form, or in a form the most rarely refined and highly idealized, religion is always found to subserve these ends. It is the native and original need for these "things of the spirit" that constitutes the basis of the religious nature.

20. As a medium for the direct development of ideals, then, religion can exert a tremendous influence through

the powerful emotional forces that it may enlist in its service. There is scarcely a fundamental human impulse that is not subject in one way or another to the stimulus that religion offers. The basic individualistic instincts (desire for life, fear of death, hope of reward, fear of punishment, yearning for happiness, dread of misery), the imperious sex, parental, and social instincts (desire of approbation, fear of disapproval, desire for the companionship of those that are near and dear, fear of banishment and ostracism), the adaptive instincts (delight in imitating forms and ceremonies, the pleasure of participating in the drama of ritualism, the comfort of satisfying instinctive curiosity concerning the mysteries of life and death), — all of these may be seized upon and turned to account by the institutions of religion. And perhaps the feeling of reverence, which is the crux of the religious experience, is to be looked upon as a resultant of these more fundamental impulses and emotions.

21. To summarize: The materials of education that may function in impressing ideals are chiefly history, biography, literature and other forms of art, and religion. Through these media standards and prejudices of a definite sort are impressed upon the mind of the individual; they may become important controls of conduct, and their fundamental significance in the development of the socially-efficient individual is unquestionable.

22. The preceding pages have not attempted an evaluation of all possible ideals in terms of the ultimate end of education. This is a task that might well occupy

the attention of the philosopher of education for a lifetime, — and even then his evaluations, however nicely adjusted, would be subject to constant revision; for social needs change with changing conditions, and the great, driving forces of human life must be adapted to these changing needs. On the other hand, there is no doubt that the development of the socially-efficient individual is absolutely dependent upon the possibility of engendering effective ideals, and there is also no doubt that to certain ideals must be ascribed a permanent value, — a value that persists through all forms of social change, a value that is inherent in the very nature of society. The following list, embodying both ideals of this permanent type and ideals that, while of questionable permanent value, have at least important functions in present-day society, is given as suggestive of some of the types that a thoroughgoing classification should include.

I. Ideals that are absolutely essential to the stability and progress of human society.
   (*a*) Respect for the feelings of others.
   (*b*) Respect for the rights of others.
      1. Property rights.
      2. Equality of opportunity (including universal free education).
      3. Tolerance in religion and politics.
   (*c*) Ideals essential to the integrity of the home.
      1. Chastity (conjugal fidelity).
      2. Monogamy.
      3. Parental love (an instinct which justifies an almost complete confirmation, the only qualification being that the impulse to protect and

shield the child be checked by a recognition that "character" is often best developed by a reasonable degree of hardship).

(*d*) Respect for age.

(*e*) Respect for womanhood.

(*f*) Sympathy with suffering and affliction.

(*g*) Self-sacrifice, self-denial (the disposition to think of one's own pleasures as worth seeking does not need the sanction of education; instinct will take care of this abundantly well).

(*h*) Personal integrity (honor, honesty).

(*i*) Loyalty.

(*j*) Friendship.

(*k*) Cleanliness, personal purity (aversion to pruriency, indecency, etc.).

(*l*) Altruism (on the negative side, freedom from the dominance of motives that have merely an individual and selfish reference; willingness particularly to work for the common good).

(*m*) Achievement (expressing itself in willingness to put forth effort and undergo discipline).

(*n*) Truth (the spirit of the "scientific method" as the most effective guide in testing the validity of facts and principles and the social value of ideals, prejudices, tastes, and attitudes; the disposition to accept the findings of science irrespective of their effects. This is socially justified by the experience of the race, which shows clearly that permanent progress has never been made by accepting dogmas that stand directly opposed to demonstrated truth).

(*o*) Simplicity (an aversion to luxury for its own sake).

(*p*) Work (an aversion to idleness).

(*q*) Health (temperance, healthful recreation).

(*r*) Initiative (the desire to search for, and accept when found, any new conduct-control that will promote social welfare).

(*s*) Independence, self-reliance (economic).

II. Ideals that are particularly important at the present stage of social evolution, but which later developments may render less important.

(*a*) Patriotism (reverence for the ideals which represent the national life; it is conceivable that social evolution may do away with present differences between nations, and that the national ideals of the present may sometime be replaced by universal ideals, made up of those national ideals which experience shall show to be most worthy of general acceptance; this, of course, is far in the future).

(*b*) National unity (may be replaced by world-unity).

(*c*) Local self-government (while there is little doubt that local initiative in governmental affairs will always be essential to the optimum of social development, it is conceivable that social evolution will produce a type of government that will safeguard local and individual interests and still effect the economies that go with centralized government).

III. Ideals that are important in the present stage of social development, but which need particular attention from education in the direction of control and partial inhibition; this limitation is due to the fact that these ideals are very closely related to strong instinctive impulses, and, unlike the weaker social instincts, need direction rather than encouragement.

(*a*) Property (a carefully qualified confirmation of the

native instinct to acquire material wealth is essential in education; to crush entirely this instinct would, under present social conditions, spell disaster).[1]

(*b*) Sexual love (the problem here is to develop ideals that will ennoble and etherealize the operation of the sex instincts).

(*c*) Ambition (the operation particularly of the powerful instinctive forces of emulation and rivalry must be controlled, chiefly through the influence of socializing ideals).

(*d*) War (all ideals that grow out of the fighting instinct must be modified by the operation of socializing factors; under present conditions at least — and it may be, permanently — the entire suppression of the fighting instinct would undoubtedly operate against social progress, — assuming that social progress means social achievement).

(*e*) Authority (to accept the dictates of authority seems to be, for most people, the line of least resistance, but for a large minority the very word is a bugbear. It would seem that a certain measure of respect for the experience of the ages is sanctioned by reason, and that those who lack this respect are likely to consume valuable time and energy in rediscovering truths that have already been adequately demonstrated and formulated, and particularly in

[1] The skeptic may deny the power of educative forces to crush so fundamental an instinct, but the skeptic forgets that powerful ideals have been developed in the past which have effectually crushed out, not only the property instinct, but also the sex instincts, which are far more imperious and fundamental.

looking upon such truths as the result of their own unaided effort, and of transmitting them to others under that impression. It is well, then, to impress upon each generation the essential principle that most of our "thoughts" have been thought before, and that whatever any individual has to offer in the way of contribution should be carefully viewed in the light of what has gone before — to the end that the periodic rediscovery of obvious facts be less in evidence, and that each individual so disposed may add a real and positive increment to the sum total of human knowledge).

CHAPTER XII

Values to be Realized in Fulfilling Disciplinary Functions

1. The status of the "disciplinary" functions in modern education, and especially among American educators, is far from settled. The reaction against the older notion of "formal discipline" [1] has probably reached its extreme point, and a counter-reaction seems to be setting in. On the other hand, the prevailing tendencies in American schools are almost exclusively in the direction of recognizing no materials of education that cannot be justified on their intrinsic instructional or training merits, and without reference to their virtues in developing generalized habits, tendencies, or attitudes that are supposed to influence conduct in unrelated fields. This is only another way of saying that the reaction against the dogma of formal discipline has just now reached the level of actual school practice; the new curriculums and programs are just beginning to feel its influence. The counter-reaction is limited to the theoretical side as yet.

[1] The notion of formal discipline originated with the Greeks. (See F. P. Graves: *History of Education*, New York, 1909, vol. i, p. 189.) Its important position in modern educational doctrine is due, in part, to the writings of John Locke, and in greater measure perhaps to the teachings of the "faculty" psychology.

The wide extent of the reaction against formal discipline is probably due, in large measure, to the new demands that have been made upon education for instruction and training that shall be definitely and unequivocally "practical." The wide dissemination of the facilities for education has imposed a heavy burden of taxation. This, in turn, has led to a more and more insistent demand that the costly machinery which has been set in motion shall make an adequate return upon the investment in the way of increased social and industrial efficiency. As Spencer so clearly points out, conventional education, when it was confined to the well-to-do and supported entirely by private endowment, emphasized the ornamental at the expense of the useful. Direct taxation, especially in America, does not respond readily when the stimulus is a proposed provision for something that is merely ornamental. Tangible results of an economic nature are demanded and education must train for economic efficiency or education will lose popular support.

It has been under the spur of this condition that practical standards have been applied with ever-increasing rigidity to the methods and processes and products of education; and this condition has operated very strongly toward preparing the minds of both laymen and professional educators for the repudiation of the doctrine of formal discipline. A formal discipline is an intangible process at best; the manner through which it works over into conduct has, until recently, been more or less problematical, not certain and indisputable. Small wonder, then, that the direct, practical American mind should have eagerly embraced the rather hastily drawn and certainly inadequately tested conclusion that disciplinary values are conventional values under another name.

2. Although the followers of Herbart very early rejected the notion of formal discipline as inconsistent

with the fundamental principles of the Herbartian psychology,[1] the first really effective attack upon the doctrine in this country followed in the wake of James's assertion, in his "Principles of Psychology," that one's native retentiveness is unchangeable, and that any exercises that seem to increase one's ability to memorize really train different specific capacities and not a single general capacity.[2] This authoritative expression from a competent psychologist, and supported by some plausible experimental evidence,[3] was immediately taken up by educators and extended to include all forms of capacity that had hitherto been considered amenable to formal training of a general nature. The reaction may be said to have gained a lasting foothold in the presentation of a paper by B. A. Hinsdale [4] before the National Educational Association in 1894. Hinsdale argued strongly and cogently for a repudiation of the doctrine of formal discipline with respect to the training of apprehension, memory, imagination, logical thought, and

[1] Cf. De Garmo: *Principles of Secondary Education*, New York, 1907, vol. i, p. 32: "Since all mental exercise takes its rise in a definite mental content, its character is necessarily determined by its origin, so that it would be absurd to assume that thinking power developed by the study of mathematics, for instance, would as such have any validity in that, say, of biology."

[2] W. James: *Principles of Psychology*, New York, 1890, vol. i, p. 667.

[3] See S. S. Colvin (*Some Facts in Partial Justification of the So-called Dogma of Formal Discipline*, Urbana, Illinois, 1910, p. 9) for a discussion and criticism of James's crude experiments.

[4] B. A. Hinsdale: "The Dogma of Formal Discipline," *Proceedings N. E. A.*, 1894; also published in *Educational Review*, 1894, vol. viii, pp. 128 ff.

volition, although he admitted the possibility of an "overflow" of training into congruent channels, "just as exercise of the muscles of any part of the body probably strengthens somewhat the whole muscular system."

3. The most important factor in the disintegration of the dogma came, however, seven years later, when the problem was first subjected to careful experimental investigation by Thorndike and Woodworth of Columbia University.[1]

The method employed in these investigations was ingenious. The following "sample experiment" will illustrate its chief characteristics: "There was a series of about 125 pieces of paper cut in various shapes. (Area-test series.) Of these, 13 were rectangles of almost the same shape and of sizes from 20 to 90 square centimeters (series 1), 27 others were triangles, circles, irregular figures, etc., within the same limits of size (series 2). A subject was given the whole series of areas, and asked to write down the area in square centimeters of each one. In front of him was a card on which three squares, 1, 25, and 100 square centimeters, respectively, were drawn. He was allowed to look at them as much as he pleased but not to superpose the pieces of paper on them. No other means of telling the areas were present. After being thus tested, the subject was given a series of paper rectangles, from 10 to 100 square centimenters in area and of the same shape as those of series 1. These were shuffled and the subject guessed the area of one, then looked to see what it really was and recorded his error. This was continued and the pieces of paper were kept shuffled so that he could judge their

[1] E. L. Thorndike and R. S. Woodworth: "The Influence of Improvement in One Mental Function upon the Efficiency of Other Functions," *Psychological Review*, 1901, vol. viii, pp. 247–261, 384–395.

area only from their intrinsic qualities. After a certain amount of improvement had been made he was re-tested with the 'area test series' in the same manner as before."

The results of this "sample experiment" are typical of all of the results of the investigation and may be briefly noted: —

The mental function that underwent training was the capacity for estimating the sizes of areas varying from 10 to 100 square centimeters. The "training" consisted in correcting the errors by ascertaining, after each estimate, the true area. This training resulted in a certain improvement. The amount of error *after* the training was, in all of the subjects tested, less than the amount of the error *before* the training. In one case it was 56 per cent as much after training as before training; in another case 53 per cent; in another 13 per cent, etc. Now what influence did this training have upon the capacity to estimate areas of the same magnitude but differing in shape? (In this case, it will be seen, the situation is somewhat different; can the training "spread" to this different situation?) In some of the subjects, it was found that the training did spread in some measure, but in only one subject was the increase in capacity at all comparable with the increase in the function trained; while in two cases, the capacity for estimating areas of different shape, far from being improved by the training on areas of the same shape, was actually diminished.

Experiments following a similar method investigated the transfer of training in estimating weights, in perceiving words containing certain letters, and in picking out different parts of speech from a printed page. The results of all of the experiments are summarized by Thorndike [1] as follows: —

[1] *Educational Psychology* (1st edition), New York, 1903, p. 90.

"Individuals practiced estimating the areas of rectangles from 10 to 100 square centimeters in size until a very marked improvement was attained. The improvement in accuracy for areas of the same size but of different shapes, due to this training, was only 44 per cent as great as that for areas of the same shape and size. For areas of the same shape, but from 140–300 square centimeters in size, the improvement was 30 per cent as great. For areas of different shape and from 140–400 square centimeters in size, the improvement was 52 per cent as great.

"Training in estimating weights of from 40–100 grams resulted in only 39 per cent as much improvement in estimating weights from 120 to 1800 grams. Training in estimating lines from 0.5 to 1.5 inches long (resulting in a reduction of error to 25 per cent of the initial amount) resulted in no improvement in the estimation of lines 6–12 inches long.

"Training in perceiving words containing *e* and *s* gave a certain amount of improvement in speed and accuracy in that special ability. In the ability to perceive words containing *i* and *t*, *s* and *p*, *c* and *a*, *e* and *r*, *a* and *n*, *l* and *o*, misspelled words and *A's*, there was an improvement in speed of only 39 per cent as much as in the ability specially trained, and in accuracy of only 25 per cent as much. Training in perceiving English verbs gave a reduction in time of nearly 21 per cent and in omissions of 70 per cent. The ability to perceive other parts of speech showed a reduction in time of 3 per cent, but an *increase* of omissions of over 100 per cent."

4. Thorndike's inferences from the results of his experiments have been frequently cited in educational literature, and have had large influence in determining the present attitude toward formal discipline. They are important enough to warrant quoting them in full: —

"Improvement in any single mental function need not improve the ability in functions commonly called by the same name. It may injure it.

"Improvement in any single mental function rarely brings about equal improvement in any other function, no matter how similar, for the working of every mental function group is conditioned by the nature of the data in each particular case.

"The very slight amount of variation in the nature of the data necessary to affect the efficiency of a function group makes it fair to infer that no change in the data, however slight, is without effect on the function. The loss in the efficiency of a function trained with certain data, as we pass to data more and more unlike the first, makes it fair to infer that there is always a point where loss is complete, a point beyond which the influence of the training has not extended. The rapidity of this loss — that is, its amount in the case of data very similar to the data on which the function is trained — makes it fair to infer that this point is nearer than has been supposed.

"The general consideration of the cases of retention, or of loss of practice effect, seems to make it likely that spread of practice occurs only where identical elements are concerned in the influencing and influenced function." [1]

It is to be noted that Thorndike admits the possibility of a partial "spread" of training in cases where there are some elements of identity between the situation to which repose is trained and the new situation. In a later work [2] he recognizes two types of identity: (*a*) *identity of substance*, and (*b*) *identity of procedure*. Identity

[1] *Educational Psychology* (1st edition), 1903, p. 91.

[2] *Principles of Teaching*, New York, 1906, ch. xv.

of substance is illustrated by the relation between mathematics and physics; identity of procedure is illustrated by the relation between the subjects employing similar types of laboratory procedure. Thus, training in mathematics will be likely favorably to affect one's mastery of physics, and proficiency in the laboratory methods in chemistry may be carried over to laboratory work in botany. It should also be noted that the Thorndike-Woodworth experiments, as the investigators pointed out in their first publication of results,[1] concerned only the influence of training on efficiency, "on ability as measured by a single test," not on ability to *improve* in the field to which the transfer was made.[2]

5. The attention drawn to the experimental study of the problem through the Thorndike-Woodworth investigations led to further attempts to gain light by the application of methods more or less similar. Dr. Naomi Norsworthy[3] tested several hundred school children in multiplication, in observing misspelled words, in marking words containing *e* and *r*, in perceiving the word *boy* on the printed page, and in marking semicircles scattered amongst all sorts of geometrical forms. Tak-

[1] *Psychological Review*, vol. viii, 1901, p. 249.

[2] This admission obviously rules the investigations out of court in so far as they speak against the transfer of training through ideals of method. It should also be noted that these investigations were not "checked" by a control test, as in many of the more recent experiments.

[3] Naomi Norsworthy: "Formal Training," *New York Teachers' Monographs*, vol. iv, 1902, pp. 96–99.

ing the results of one of these tests as a standard, she correlated with them the results of the others in an effort to determine whether a high grade of efficiency in one function means necessarily a high grade of efficiency in other functions. Finding very little direct correlation in these functions, she concluded that there are no such things as general abilities, and consequently that it is "folly to pretend to train them."

6. Experiments undertaken in the Montana State Normal College seemed to substantiate these conclusions. These experiments tested very crudely the ability to transfer the results of training in neatness and accuracy. The conclusions were published in the writer's "Educative Process," without attempting to give the data from which they were drawn. Inasmuch as these conclusions have been cited since that book appeared, it may be well to give rather more definite information concerning the experiments at this time. It should be noted that these tests were made by normal school students, and, although they were carefully planned and supervised by a trained psychologist,[1] it was not intended in the publication of their results to present anything more than an interesting commentary upon the earlier experiments. Indeed the extent to which they have been generalized is quite unjustified. For this the writer must assume full responsibility because of the brevity with which the test was described in his earlier book.

[1] Dr. Carrie Ranson Squire.

The test consisted simply in insisting on neatness and accuracy in the preparation of arithmetic papers by pupils in the latter half of the third grade. Nothing was said of either neatness or accuracy in connection with the rest of the school work during the period covered by the tests. The papers in language and spelling were, however, saved, and later these were graded and the marks of each pupil compared with his corresponding mark in the arithmetic test. In the subject emphasized (arithmetic) it was found that three weeks' persistent drill upon the preparation of neat and accurate papers resulted in the initiation of very effective habits. The papers were all graded by the same three individuals (the student-investigators). Out of thirteen pupils tested, all showed this improvement in arithmetic save one, whose last paper fell 0.02 behind the first paper in accuracy, although it was improved in neatness. The average gain for the thirteen pupils was 3.69 per cent in accuracy, and 4.9 per cent in neatness (reckoning the increase on the markings of the papers which was upon the ordinary scale of 100). When the language and spelling papers were graded and averaged, however, it was found that there was in every case save one a decrease in both accuracy and neatness. This one pupil, curiously enough, was the exception to the general result in the arithmetic test. The language papers showed an average deterioration of 3.2 per cent in accuracy and 2.1 per cent in neatness; the spelling papers a deterioration of 3 per cent in accuracy and 2.3 per cent in neatness. Whether this deterioration would have continued with a continuance of the same conditions, there is, of course, no means of telling. There is nothing in the results to show that the virtues of the specific training were even beginning to be transferred, and, in view of the marked deterioration, it was thought best to stop the test. The procedure throughout, it should be noted, emphasized only *specific* habits.

7. The Thorndike-Woodworth data, combined with inferences of a more theoretical nature, operated to place the older form of the doctrine of formal discipline in a dubious light. On the other hand, only a few of the more radical educators were willing to repudiate it entirely. The fact that, in many of the experiments, a transfer was to be noted in individual cases, suggested that, after all, there might be a way out of the difficulty. The virtues of the doctrine might be retained, even if its dogmatic form and its supposed universal validity were repudiated.

8. In the "Educative Process," after reviewing the experimental evidence then available, the writer suggested that the transfer of the results of training could be accomplished, in some measure, through a process of judgment. That is, functions may be improved by the application of *ideas* or procedure and method gained in other fields: or, inasmuch as the effective employment of any *idea* as a goal or aim of adjustment depends, as has been suggested in previous sections, upon the emotional coloring of the idea, it is better to use the term *ideal* to designate the agency that usually accomplishes the transfer. For example, the close thinking that is trained in mathematics may come to function in other fields, — in political economy or in psychology or even in the work of practical, everyday life, — provided that one has gained from the study of mathematics a certain respect or perhaps even reverence for the rigid, clear-cut mathematical method. If mathematics is

taught, however, in a purely mechanical fashion, with no attempt to make its methods conscious to pupils or to give them an *appreciation* of the virtues of the method, the "spread" will manifestly be an uncertain quantity. Indeed, one may very easily be prejudiced against a method by poor teaching, and so resist any temptation to apply it to other situations.

9. That there is something in this point of view aside from a theoretical inference has been recently shown by Ruediger [1] in a series of tests that took their "cue" from the studies on neatness and accuracy described above.

Ruediger limited his study of the influence of ideals of neatness in improving the written work of seventh-grade school children. His tests covered a period of three months and were conducted simultaneously in three schools, — one in New York City, one in Washington, D.C., and one in the same Montana school that had furnished the data for the earlier study. As in the earlier experiments, he insisted upon neatness in the preparation of the papers in one school study. In the remaining studies, nothing was said about neatness, but *during the exercises in which the specific training was being undertaken*, it was attempted, by talks and discussions about neatness in general, to develop an *ideal* of neatness among the pupils. The papers of two unemphasized subjects were preserved, together with the papers in the subject emphasized. All of the papers were graded by three experienced persons who had been in no way connected with giving the tests (except that one of them was Dr. Ruediger himself, who had planned the

[1] W. C. Ruediger: "The Indirect Improvement of Mental Function through Ideals," *Educational Review*, vol. xxxvi, 1908, pp. 364–371.

tests, but who had taken no part in collecting the data). The grading was upon the scale of 100 and the estimates placed independently by the three examiners were sufficiently similar to indicate that the judgment of experienced teachers in grading papers for neatness can be thoroughly trusted. On comparing the marks, it was found that while the gain was the greatest in the subject emphasized, there had been a very perceptible gain in the subjects unemphasized. For example, in one of the schools, the average grade for neatness in the subject emphasized increased during the three months of the test from 85.3 per cent to 90.3 per cent, — a gain of 5 per cent. In the two subjects unemphasized, the gain was from 84.5 per cent to 88.5 per cent and from 83.6 per cent to 87 per cent respectively, — or gains of 4 per cent and 3.4 per cent, as contrasted with the 5 per cent gain in the subject emphasized. These gains were general among all the pupils tested (eighty-three pupils in all) and no instance of deterioration is noted.

Ruediger concludes from these data that neatness "made conscious as an ideal or aim in connection with one school subject does function in other school subjects." Regarding the use of the term "ideal" to designate the agency of transfer, he has this to say: "The experiment touches the question of 'generalized habits' which has been a disturbing factor in the problem of formal discipline from the beginning. According to psychological analysis, habits are specific — they cannot well be anything else — but according to common observation, certain so-called habits appear unquestionably to be generalized. Such habits are industry, perseverance, self-reliance, and the like. The cause of the

difficulty here is no doubt largely a verbal one. If, instead of the word 'habits,' we should use the word 'ideals,' much of the difficulty would disappear. Where such a function as perseverance is generalized, it is done so partly, at least, through conscious effort."

Ruediger indorses Thorndike's classes of identities which condition the transfer of training, but he would add a third to cover the operation of this factor of ideals. He calls this third identity, "identity of aim."

10. It would seem, however, that the conscious factor that we have designated by the term "ideal" has a wider significance than Ruediger is willing to admit. What is trained by a specific discipline is a definite response to a definite situation. All will admit that, where another situation possesses elements similar to those involved in the situation to which the response has been trained, the same response *may* be called forth. Under what conditions will it be called forth? Obviously, where *the similarity is consciously recognized.* This does not exclude response upon "assimilation" or marginal recognition, or even thoroughly unconscious and mechanical response; but the experiments seem to indicate that these are negligible factors, — that a very slight change in the situation will frequently break up a pure habit. The problem, from the practical point of view, then, becomes this: How may we *assure* ourselves that the pupil will make an effort consciously to search out similarities which may be present but which do not catch attention at the outset? If we have trained pupils

to think rigidly in geometry, for example, how shall we insure an application of rigid thinking to situations that lack the geometrical elements? If we have trained pupils to employ certain effective methods in learning their lessons in spelling or in geography, how shall we insure the application of these effective methods to situations that lack the spelling "cues" or the geography "cues"? Shall we not have the greatest assurance of such transfer, if the method has been made to appeal to the pupil as something thoroughly worth while, thoroughly reliable, thoroughly likely to produce results that he is anxious to secure? And when a method appeals to a pupil in this way, is not the appeal emotional in its nature?

11. It is this *conscious* factor, then, that needs emphasis in all teaching that attempts to do what the older doctrine assumed that formal discipline would do. This conclusion is confirmed by all of the recent experiments in the transfer of training. Reference to the more important of these will be sufficient at this time.

(*a*) *The Ebert-Meumann Experiments.*[1] Ebert and Meumann first tested the capacity of their subjects to memorize meaningless syllables, series of letters, series of numbers, series of one-syllabled nouns, series of foreign words (Italian), stanzas of poetry, visual signs, and prose. The subjects were

[1] E. Ebert and E. Meumann: "Ueber einige Grundfragen der Psychologie der Uebungsphanomene im Bereiche des Gedächniss. (A). Untersuchungen der Wirkung einseitig mechanischer Uebung auf die Gesamtgedachtnisfunktion," *Archiv für die gesamte Psychologie*, vol. iv, 1904, pp. 1–232.

then subjected to a thorough training upon one of these sets of material — meaningless syllables. Upon the completion of this training, the capacity for memorizing the other varieties of material was tested. It was found that there was, in every case, an improvement of capacity. This improvement was most marked in the case of the material most closely related to nonsense syllables, — that is, in the series of letters, numbers, and single words, and least marked in the case of the materials having least resemblance to nonsense syllables — poetry, prose, and visual signs. The increase in capacity for the latter class of materials, however, is much greater than one would expect. The capacity for retaining philosophic prose was increased 70 per cent, and the memory for visual signs was increased 55 per cent. The authors maintain that the transfer is due to the sympathetic practice-effect of allied functions through the medium of an hypothetical psychophysical factor. Critics [1] of this explanation, however, are agreed that this hypothetical element is unnecessary to explain the phenomenon, maintaining that the increased ability to concentrate the attention, increased familiarity with and habituation to the general laboratory conditions, increase of effort to improve the memory, decrease in feelings of discomfort and tedium, and conscious improvement of technique of learning are sufficient to account for the transfer noted.

(*b*) *The Coover-Angell Experiments.* Coover and Angell [2] selected for experimentation a set of capacities in which the factor of identity of elements was much more thoroughly eliminated than in the Ebert-Meumann tests. Their first series

[1] For example, G. E. Müller: *Zeitschrift für Psychologie*, vol. xxxix, 1905, pp. 111 ff.; R. S. Woodworth: *Journal of Philosophy, Psychology, and Scientific Methods*, vol. ii, 1905, pp. 137 f.; W. F. Dearborn: *School Review*, vol. xviii, 1910, p. 702.

[2] J. E. Coover and F. Angell: "General Practice Effect of Special Exercises," *American Journal of Psychology*, vol. xviii, 1907, pp. 328–340.

of experiments was undertaken to determine the influence of training in discriminating sounds upon the capacity to discriminate brightness differences (shades of gray). The tests for sound were given with a sound-pendulum; the tests for brightness were given by means of a Marbe color-mixer. A control experiment was introduced to determine the influence of the preliminary tests and of the time-interval in any improvement that might be noted. Out of four subjects trained in the discrimination of sounds, three showed that some of this training had been carried over to the discrimination of brightness. One did not improve at all in discriminating sounds, and his second brightness-test showed a deterioration from his first brightness-test.

A second series of experiments was undertaken to determine what influence training in sorting cards would have upon ability to react properly upon a typewriter to certain letters which were exposed to the subject's view. A control experiment was also carried on to eliminate the factor of the "hibernation" period. It was found that the time of the typewriter reaction was decreased by the training in sorting cards, but that the errors were increased.

Coover and Angell explain the transfer of training in the first series of experiments as a divesting of the essential process of its unessential factors, a freeing of judgments from illusions, and the attaining of a more uniform state of attention which is less than the maximum. The more economic adaptation of attention is especially emphasized. It should be noted that all of the experiments were accompanied by introspective reports, consequently the cause of the improvement could be determined with much greater certainty than in the case of most of the experiments on transfer. The improvement discovered by the second series of experiments is explained by three factors: (1) the formation of a habit of reacting directly to a stimulus without useless kinæsthetic, acoustic, and motor

accompaniments of recognition, which results (2) in an equitable distribution of attention to the various possible reactions so as to be about equally prepared for all; and (3) the consequent power of concentrating the attention throughout the whole series without distraction.

(*c*) *Winch's Experiments.* W. H. Winch, an English psychologist, has been one of the most ardent advocates of the older view that memory is a general function and that it can be trained by appropriate formal exercises. In 1904, he published the results of a series of experiments which to his mind substantiated this position. He had children memorize lists of 12 consonants which were exposed to view for 25 seconds, and which they were to reproduce immediately afterward. Ten lists were learned on one day, ten more a week later, and ten more three weeks after the first. Improvement from week to week was shown by most of the children, and the author concluded from this that their general power of memory was increased. It seems clear, however, that better methods of learning and better adaptation to the conditions of the experiment and, perhaps, the influence of the incubation period, could have accounted for the improvement.

More recently, however, Winch has undertaken some experiments which were much more carefully planned and executed.[1] He tested pupils in the early adolescent period — pupils ranging in age from eleven years to fifteen years, averaging thirteen years. Instead of testing the same group of pupils before and after training and so determining the influence of the training, Winch introduced a new method of making this determination. He divided the pupils into two groups of approximately equal ability in memory. This di-

[1] W. H. Winch: "The Transfer of Improvement in Memory in School Children," *British Journal of Psychology*, vol. ii, pt. III, 1908, pp. 284–293.

vision was made partly on the basis of an actual test, partly on the basis of the teacher's judgment of their abilities. Both groups contained the same number of pupils. Both were tested on their ability to memorize a passage from an historical reading book, their ability being measured by the amount that could be reproduced immediately after fifteen minutes of study. Members of the first group were trained during the next week or two in memorizing poetry, the members of the second group being occupied at the same time with problems in arithmetic. Otherwise the school work was the same for both. After the period of training was completed, the two groups were brought together and subjected to a second test in memorizing a selection from an historical reader. It was found that the first group that had received the training in memorizing poetry did much better in this final test than the second group who had missed this training. The author comes to the following conclusion: "Improvement gained by practice in memorizing one subject is transferred to memory work in other subjects whose nature is certainly diverse from that in which the improvement was gained."

It will be noted, however, that the nature of subject-matter is not so diverse as to exclude altogether the operation of identical elements, nor is the difference between the two groups in memory capacity at the close of the test so great that one needs to assume that a "general" function of memory has been trained. The factors emphasized by Müller and Woodworth in connection with the Ebert-Meumann tests apply with even greater force to the conclusions of Winch.

(*d*) *Fracker's Experiments.* These investigations were made at the University of Iowa.[1] The training series consisted in memorizing the order of four tones. The test series were

[1] G. C. Fracker: "On the Transference of Training in Memory," *Monograph Supplement, Psychological Review*, vol. ix, 1909, pp. 56–102.

eight in number, as follows: (1) memory for poetry; (2) memory for the order of four shades of gray; (3) memory for the order of nine tones; (4) memory for the order of nine shades of gray; (5) memory for the order of four tones; (6) memory for the order of nine geometrical figures; (7) memory for the order of nine numbers; (8) memory for the extent of arm movement. The results of this investigation show very clear evidence of a transfer of training, the improvement in the second test-series appearing to be dependent upon the conscious control of the best methods of memorizing. To quote from the author's summary: "Improvement seems to depend upon the *consistent* use of some form of imagery. . . . The rate of improvement seems to depend directly upon the *conscious recognition* of the imagery, and upon *attention to its use*. . . . It seems . . . that a *conscious effort* to use the elements of training in a different task assists in making the transfer." [1]

(*e*) *Ruger's Experiments.* From the Columbia University psychological laboratory we have a very interesting series of experiments reported by H. A. Ruger.[2] The investigation aimed at an analysis of "human methods of meeting relatively novel situations and of reducing their control to acts of skill." The method employed was an introspective account of the observers' mental processes in solving mechanical puzzles. The investigation had a much wider purpose than merely to throw light upon the problem of transfer, but several series of tests were employed with this specific end in view. The author reached the following conclusions: "*In general, the value of specific habits under a change of conditions depended directly on the presence of a general idea which would serve for*

[1] G. C. Fracker, *op. cit.*, pp. 101–102. (Italics mine.)

[2] H. A. Ruger: "The Psychology of Efficiency," *Archives of Psychology*, No. 15, 1910.

their control. . . . No evidence was secured in favor of an automatic change in the level of attention, but there were indications of its indirect control by means of ideals of what constituted an efficient state of attention. . . . The great significance of ideals of method has perhaps been sufficiently emphasized. This significance was especially striking in proportion as the situation in question was distinctly novel. The ideal of efficiency as a goal to be reached, the ideals of scientific method, and the ideal of an optimum personal attitude were among the most important of these." [1]

12. In all of these experimental investigations, then, it is the factor of conscious transfer that stands out sharp and clear as the determining agent in whatever "spread" of the results of training may be detected. So convincing is this evidence that both Heck [2] and Ruediger [3] — even prior to the publication of Ruger's results — acknowledged unreservedly the probability that conscious transfer is the most satisfactory solution of the problem of formal discipline, although, very curiously, both of these writers subscribe to the narrow doctrine of specific discipline; that is, while they admit the possibility of transfer, they maintain that the subjects of the elementary and secondary curriculums should be chosen primarily on the basis of the value of the facts and principles represented, rather than upon the basis of the ideals that may be indirectly engendered. Heck [4]

[1] H. A. Ruger, *op. cit.*, pp. 19–20.

[2] W. H. Heck: *Mental Discipline and Educational Values*, New York, 1909. (An excellent discussion of the conscious factor.)

[3] W. C. Ruediger: *Principles of Education*, Boston, 1910, ch. vi.

[4] *Op. cit.*, ch. vi.

also objects to the importance that the present writer placed upon the emotional element in insuring transfer. He prefers to call the agency of transfer a "concept of method" rather than an ideal. This criticism has already been answered in the foregoing discussion, and, in any case, Ruger's results effectually invalidate it. Colvin,[1] while admitting the primacy of conscious transfer, still holds to the possibility of a generalized habit, but he has not, as yet, adduced experimental evidence in support of this contention.

13. There may be some mysterious factor involved which would work toward a transfer of training, even if the organism were reduced to the basis of an automaton; the convenient category of the subconscious may, if one wishes, be brought in to obscure our view, and justify conclusions that would otherwise be untenable; but it is difficult to see in what way educational practice would profit by either of these solutions of the problem. On the other hand, the recognition of the conscious factor as the chief agency in the transfer of training leaves us in a very much more favorable situation than that which confronted us when we expressed the disciplinary value in general and indefinite terms. In other words, this formulation furnishes a "cue for conduct" in that *it indicates very clearly the method that must be pursued if the chances of transfer are to be made worth considering.* The controversy over formal discipline has, consequently, resulted in an important practical suggestion.

[1] Colvin, *op. cit.*, pp. 23 ff.

For example, it would be quite inconsistent from this point of view to teach mathematics for the purpose of mental discipline without taking explicit steps to insure upon the part of the pupil an appreciation of mathematical method. It is in this precision of analysis that the disciplinary value of mathematics admittedly inheres, but one might master mathematics through all its branches without becoming conscious of the worth of this virtue. As Young[1] so clearly points out, the common method of teaching algebra and geometry, while it may issue in a conventional mastery of the facts and principles, does very little to realize the disciplinary value that inheres in mathematical study.

Similarly in the teaching of natural science, unless the pupil or the student is led to see the worth of scientific procedure through which laws are finally established, it is not to be expected that his "training" in science will protect him from hasty generalizations and unfounded inferences in other fields.

Certainly one of the most unfortunate results of the "finished" form in which both mathematical and scientific truths are presented lies in the very fact that the methods through which these results have been gained are seldom or never made conscious to the student. The narrowly utilitarian values may be sufficiently realized by their mastery: as far as the direct application of facts and principles is concerned, the direct presentation of the facts and principles may suffice. But the *unique* values of these subjects are of a different order, and require a different procedure if they are adequately to be realized.

14. The method and especially the spirit of instruction and training are the all-important factors in the

[1] J. W. A. Young: *The Teaching of Mathematics*, New York, 1907, p. 39.

fulfillment of disciplinary functions. The aim in such instruction and training must be to make conscious to the student or the pupil the characteristic virtues of the methods through which the facts are discovered, the principles induced, the situations solved, and the habits formed. The value of carrying the pupil through the discipline must be looked upon as chiefly giving him a clear-cut demonstration of the virtues that the method possesses. This will not be inconsistent, of course, with fulfilling other functions. The materials of mathematics, for example, used primarily to promote the ends of discipline, may, at the same time, be intrinsically valuable to the individual from the point of view of the instructional, the training, the interpretive, or the recreative function; but if mental discipline, in this revised meaning of the term, is the thing that is sought, then all other functions must, of course, be subordinate to the disciplinary function, and methods inconsistent with fulfilling this function, however well they may fulfill any or all of these other functions, must be rigidly excluded.

15. This leads to what is perhaps the crux of the problem of disciplinary values, once it is admitted that such values may be realized. The question has often been raised: Are there any subjects in the curriculum in which the function may be said to be predominantly disciplinary? In other words, can we justify in the curriculum materials that fulfill a disciplinary function and that alone? This question is of paramount impor-

tance at the present time because, as has already been suggested, the school is being subjected to a most persistent demand for the inclusion in its curriculum of facts and principles that fulfill a clearly apparent instructional function. It is easy to see that a most troublesome conflict between opposing functions is likely to occur if one answers the above question affirmatively.

Granting for the moment that ideals of close and rigid thinking may emerge from the study of pure mathematics, and granting for the moment that the value of the facts and principles gained from such study is negligible so far as the average pupil is concerned, is it possible to justify the teaching of mathematics upon a disciplinary basis pure and simple? A similar question may legitimately be raised in connection with pure science and with the "dead" languages. What light will the principles proposed in the present chapter throw upon this problem?

16. It will be profitable to put the arguments, *pro* and *con*, in the form of "briefs" which summarize the results of applying to these questions the principle of transfer through ideals. The contention between the advocates of pure science on the one hand and of applied science upon the other hand may be chosen as typical. The brief for pure science may be stated in the following propositions.

(*a*) When the general welfare and progress of human society is made the ultimate criterion for measuring educational

values, it is clear at once that the facts and principles of science, important as they are, do not approach in significance the spirit and the ideals of the scientific method. (1) The applicability of facts and principles to economic problems is very largely dependent upon the specialized function that one is called upon to fulfill in the division of labor. (2) Facts and principles stand in no danger of "missing a link" in transmission from generation to generation; they are crystallized in books, in inventions, and in other culture-products. On the other hand, (1) the method and spirit of science are universally applicable; every individual may profitably approach the problems that he has to solve, no matter in what field he may work, with the scientific attitude of mind. And (2) while facts and principles stand in no danger of "missing a link" in transmission, the ideals and spirit of science must be kept alive from generation to generation.

(*b*) The point of view in applied science is primarily utilitarian. This "practical" attitude undoubtedly tends to color every other consideration. The virtues of the scientific method are not practiced for their own sake, but for an ulterior motive; consequently the emotional force that is essential to animate those virtues — to make them ideals that will be "carried over" to other fields — will attach rather to the narrower ideals of utility and economic expediency. "Short-cuts" and propositions accepted upon authority are often effectively applied to economic problems, and the existence of such a condition cannot fail to militate against the fulfillment of the unique disciplinary functions.

(*c*) Applied science, emphasizing as it does the utilitarian values, will inevitably demand quantity rather than quality in the work demanded of students. With the better and more capable students, the discipline may come in spite of haste. With the average student, the longer and more penetrating processes from which the perception of the unique value of

scientific method will emerge with the greatest certainty will be omitted. The mastery will be upon the basis of the synthetic method (which may very well serve utilitarian ends) rather than upon the basis of the analytic or heuristic method (from which alone the recognition of the true worth of the ideals of science can emanate).

(*d*) Finally the organic structure of a pure science is much better adapted to the engendering of ideals of method than the unsystematic character of the applied science, — unsystematic in that the organization is imposed from without, and is not a logical development from within. The applied science is often a "hodge-podge" of facts and principles that are related to one another only through their application to certain phases of industrial life. The pure science is a coherent body of facts and principles, each of which is naturally or inherently related to all the others. As the student progresses gradually from unit to unit, he should pass through a series of experiences which have a cumulative effect. The long process of gradual mastery finally leaves him with a completely organized system, and the respect that he has acquired for the method (and which is so important in the development of an effective ideal) will be a function, in part at least, of the coherence and logical completeness of the system, as well as of the time and effort that he has put into the mastery. The situation is not unlike that which is presented in the appreciation of art. The soul of art is its organic unity,—its complete subordination of details to the central theme. The keenest joys of appreciation come when one has paid the price of effort, and has worked through the successive steps of analyzing the details until the beauty of the work as a whole dawns upon one. Pure science is a similar organic unity, and its gradual mastery will induce similar emotional effects and thus contribute essentially to the vitalizing of the ideals of scientific method.

17. In what way will the advocate of applied science answer these arguments? In the first place, let us assume that he will grant the social importance of disseminating in as wide a circle as possible the ideals of scientific procedure. The argument in this case seems incontestable, and the efforts of this advocate must be to prove that a curriculum of science in which the factor of economic application is emphasized may at the same time fulfill the disciplinary function as well as, or perhaps better than, a curriculum of pure science.

(*a*) Obviously the first attack will be against the assumption that an emphasis of economic applications necessarily precludes the development of effective ideals of scientific procedure. This is a question of fact, and the recourse must be to cases which show that utility and the scientific spirit are not inconsistent. There is at least one investigation of this question, the results of which, while not at all conclusive, are sufficiently significant to warrant shifting the burden of evidence to the other side. J. P. Gilbert[1] divided a class in secondary zoölogy into two sections. One of these sections he subjected to instruction of the pure-science type; the other to instruction in which the economic applications of the science were persistently and systematically emphasized. At the close of the semester, both sections were subjected to several tests which were designed to determine whether one section had made greater progress in the appreciation of and control over scientific method than had the other section. While both sections were small, and while other conditions were such as to preclude the drawing of general inferences, the results

[1] J. P. Gilbert: "An Experiment on Methods of Teaching Zoölogy," *Journal of Educational Psychology*, vol. i, 1910, pp. 321 ff.

for the pupils tested were unequivocally in favor of an applied-science approach, even when the desired outcome is an appreciation of scientific method.

(*b*) A possible explanation of this probability will serve as an answer to the argument that the emotional force necessary to vitalize the ideals is most effectively furnished by a course that is coherent and logically arranged, and thus provides an æsthetic appeal. While this contention may be theoretically justified, it is much more probable that the emphasis of economic applications will make a much more forcible and a much more general appeal, and thus serve more effectively to give point and vitality to the ideas of method and procedure and thus turn them into ideals. After all, the prime source of emotional factors is the fundamental needs of the individual, and the next most prolific source is humanity and its needs. When a high-school pupil finds that a rigidly controlled method of procedure, coupled with a rigorous exclusion of irrelevant factors, including his own prejudice and bias, gains results that are of service to him and to the race, it is likely that he will have much more effective respect for the method and its rigorous qualities than he would gain if it were attempted to carry him through a series of experiences ending in the contemplation of a logical and coherent body of facts and principles.

(*c*) And this leads to another objection to the assumption of the first advocate. The average student, undergoing a process of general education, is not likely to pursue the study of any one science long enough to gain the results hypothesized. What is food for strong men is not easily assimilated by infants, and materials abstracted from the warmth and vigor of human relationships are likely to engender negative rather than positive prejudices in respect of the methods which they represent.

(*d*) To the argument that an economic emphasis will de-

mand quantity rather than quality, the second advocate may well reply that this condition is not inevitable, and that the point and vitality furnished by the economic emphasis will, if rightly directed, make analytic and heuristic teaching much easier and much more effective than it would be otherwise.

18. At every point, the advocate of applied science seems to have the better of the argument, — so long as he limits his plea to the *approach*, and so long as he recognizes the immanence of the method and spirit of science as compared with its facts and principles. He may well maintain that the method and spirit have no meaning except as productive of facts and principles, and that if such facts and principles can be so chosen as to represent a maximum of utility without at the same time interfering with the fulfillment of the disciplinary functions, it is economy to make the choice on this basis.

19. The arguments adduced above might be applied to the question concerning the justification of mathematics as materials of general education. It is evident, however, that the two cases are not precisely parallel. In the first place, it may be maintained that the unique character of mathematical discipline lies in the very fact of its abstractness; in the second place, it may be maintained that the logical coherence of mathematical reasoning is much more obvious than that of science, and that the sanction which the contemplation of a coherent body of facts and principles may give to the ideals of method and procedure will attach to the study of mathematics much more readily than to a study of

the natural sciences. On the other hand, there can be little doubt that, even here, the factor of concrete and economic application would add vitality to the pupil's conception of the method. The danger would lie in an overemphasis of the applied phases and a failure to draw attention consciously and explicitly to the fundamental fact that it is the rigid "clear-cut-ness" of the method that makes the results possible. This, after all, is the important step if disciplinary functions are adequately to be fulfilled either in science or in mathematics.

20. It may safely be concluded, then, that the disciplinary and instructional functions of science and mathematics are not entirely inconsistent with one another. The solution of the problem lies very largely in the attitude of teacher and pupil toward the materials in question. The practical phases may be emphasized in the course of a treatment that will satisfactorily meet the cultural and disciplinary demands. On the whole, this is perhaps the safer policy.[1] But even if applied science is taught as such, there are numerous methods by means of which many of the virtues inherent in the pure forms may still be represented. An insistent attempt to keep the broad outlook will mitigate in a measure the tendency of industrial science to become

[1] T. J. McCormack, in an admirable paper (*Why Do We Study Mathematics?* Cedar Rapids, Iowa, The Torch Press, 1910), suggests that both the pure and the applied forms of mathematics should receive emphasis in the schools, — the former to meet "intellectual needs," the latter to meet "economic needs."

immersed in narrowing and sordid motives. The qualitative aspect of the work can, under the proper direction, be made to appeal to the pupil as a much more important factor than the quantitative aspect. And finally, coherent organization, while not approaching the measure of perfection that the pure forms present, is still possible in a degree that will insure some of the advantages named above.

21. The unique disciplinary functions that are supposed to be fulfilled by the study of the ancient languages are distinguished from those assumed for pure mathematics and pure science in at least one important particular. They are much more difficult to fulfill with the average pupil taught by the average teacher. The nice distinctions that are made possible by the highly inflected character of Latin and especially Greek are, in the literature of those languages, made the vehicles of equally subtle distinctions of thought. There can be no reasonable doubt that the right kind of training in recognizing these distinctions *may*, as the classicists maintain, be transferred to other varieties of mental activity. If our hypothesis is correct, however, — if the possibility of transfer is conditioned by a recognition on the part of the pupil of the vital worth of the process, — it must be admitted that the *average* teacher does not accomplish the desired end with the *average* pupil in nearly so marked a measure as the analogous end is accomplished in mathematics and science. The reason is not far to seek. The appreciа-

tion of the value of the distinctions can come effectively only when one sees the relation between the content and the form. As a matter of fact, the proportion of pupils who ever come to an adequate appreciation of the literary content of the ancient languages is admitted by the classicists themselves to be deplorably low.

22. Another factor must also be considered in this connection. With the organization of the sciences, a vast amount of culture material has been introduced into the educational curriculum which is recognized as possessing unquestioned value and which demands a large amount of the pupils' time and energy in its mastery. Much of this is now coming to be demanded from a conventional point of view; its value is clearly apparent to the pupil at an early stage of the instruction. On the other hand, the period of time that must elapse before a pupil can appreciate classic literature in a degree sufficient to permit a realization of its unique values is inordinately long and the requisite effort is inordinately severe. The question is really not one of the absolute worth of classical study; it is rather one of relative worth. If the intrinsic values of the classics, — that is, the values accruing to the instructional and inspirational functions of the thought-content itself, — can be gained in some measure through translations as well as through the originals, the unique disciplinary function will be left as the last support of extended classical study. Place this discipline as high as one will, it still seems quite impossible to make it

justify any extended study of the classics in their original form as a *necessary* part of general education. As has been indicated, some study of Latin may be made to fulfill an important training function in improving one's control of the mother-tongue, and from the pupils who undergo this training, some will be selected who will have the taste and capacity to pursue the subject to a point where its unique and important disciplinary possibilities will be richly realized.

It is well, however, to suspend judgment upon this question until it is definitely proved that the inspirational and instructional functions noted above either can or cannot be adequately fulfilled through translations. The *a priori* contentions against this possibility are not convincing;[1] but the ideals and standards which the Greeks and Romans wrought out of their experience and crystallized so clearly in their literature are too important a part of the culture heritage of the race to permit education to incur any risk in their transmission. The relative worth of "translations" and "originals" should be subjected to a most careful and extended experimental study. This problem is far from insoluble by the methods that experimental education even now possesses.

23. At the close of Chapter XII, a tentative list of the ideals that may be directly engendered by educative

[1] Cf. W. T. Harris, *Proceedings, N. E. A.*, 1901, pp. 145 ff.; also P. Shorey, "The Case for the Classics," *School Review*, vol. xviii, 1910, pp. 585-617, especially p. 590. Professor Shorey's contention, however, touches only the disciplinary function.

materials was presented. Some of these will probably be more effectively fixed through the more indirect disciplinary processes, and some not included in the former list may be assumed to require the disciplinary process for their adequate development. It will be well, therefore, to add another tentative list which will include many of the valuable ideals and prejudices that may result from the fulfillment of disciplinary functions.

I. Ideals of scientific method.

(*a*) Unprejudiced observation and induction. (The term "unprejudiced" is certain to confuse when used in so close a juxtaposition with the term "prejudice," which represents the very desirable outcome of a disciplinary process; this antithesis, however, is only apparent; as a matter of fact, every true scientist is "prejudiced" in favor of the scientific method; the problem is always, not to read prejudice out of life, — this were impossible even if we wished to do so, — but to select our prejudices with due caution, and judge their worth just as we judge the worth of ideas and habits; and the kind of prejudice that science reads out of its procedure is simply the kind that experience has shown to interfere with the desired results; personal bias for or against the possible outcome of an experiment is accordingly prohibited, but the scientist is not obliged to discard all prejudices, — to do this would be to commit mental suicide.)

(*b*) Rigidity of reasoning.

(*c*) Logical procedure. (The ideal schemata of logical analysis obviously belong here.)

(*d*) Caution in making inferences and drawing conclusions.

(*e*) The disposition to accept what is proved to be true no matter how ruthlessly it may upset one's previous conceptions, or override one's most cherished hopes.

(*f*) Ideals of validity (especially engendered through practice in weighing evidence).

II. Ideals of method and procedure which are not to be identified especially with the scientific method but which may obviously result from the operation of specific disciplines.

(*a*) Neatness.

(*b*) Promptness.

(*c*) Accuracy.

(*d*) Application, diligence, effort.

(*e*) Ideals of methods of study.

(*f*) Initiative.

(*g*) Self-confidence.

CHAPTER XIII

Values to be Realized in Fulfilling Recreative Functions

1. A social value that materials of education may possess is that in virtue of which the individual is led to seek pleasure and relaxation upon a plane higher than he would be able to attain without the aid of an educative process. While one cannot wholly disagree with Spencer's assertion [1] that the activities that make for self-preservation should be first considered in constructing the curriculum, the relation between the two types of activity seems to be much closer and more intimate than Spencer recognized. Enjoyment is more

[1] Cf. *Education*, pp. 74 f.: "We yield to none in the value we attach to æsthetic culture and its pleasures. Without painting, sculpture, music, poetry, and the emotions produced by natural beauty of every kind, life would lose half its charm. So far from thinking that the training and gratification of the tastes are unimportant, we believe that the time will come when they will occupy a much larger share of human life than now. . . . But it is one thing to admit that æsthetic culture is in a high degree conducive to human happiness, and another thing to admit that it is a fundamental requisite to human happiness. However important it may be, it must yield precedence to those kinds of culture which bear more directly upon the duties of life. . . . Accomplishments, the fine arts, *belles lettres*, and all those things which, as we say, constitute the efflorescence of civilization, should be wholly subordinate to that knowledge and discipline on which civilization rests. *As they occupy the leisure part of life, so should they occupy the leisure part of education.*"

than an accessory in life. It is a necessity; and it is a necessity because efficiency in economic and social adjustments depends in no small measure upon the tastes, sentiments, and prejudices that control the adjustment of one's leisure moments.

2. The justification of fulfilling recreative functions may take several forms, of which two may be instanced as typical: (*a*) The relation between efficiency of adjustment and the amount of available energy that is at the disposal of the organism is obviously direct and unequivocal. That a pleasurable state of mind, — a condition of relative happiness and buoyancy, — increases the availability of energy is adequately proved by psychological experiment. Even a slightly pleasant stimulus will measurably increase pulse-rate, blood-flow, and depth of breathing, and consequently augment metabolism; while a slightly unpleasant stimulus will decrease these activities and consequently diminish metabolism. Hence, anything that will make for increased buoyancy will, other things equal, make for increased efficiency.

The limitation, however, is apparent, and it is in the limitation that the justification of recreative values inheres. One may seek pleasures of a low order or pleasures of a high order. One may follow the dictates of primitive impulse, or one may, if means of higher pleasure have been developed, turn to these for relaxation from the workaday activities. The gratification of primitive impulses will, if persisted in, defeat

the purpose of relaxation; instead of increasing the availability of energy, sensual pleasures will, in the long run, tend in the opposite direction. On the other hand, while the delights that inhere in the higher æsthetic enjoyment of art and literature and nature may be indulged to excess and so come to be ends in themselves, the danger is manifestly less than in the case of sensual pleasures. The employment of educational forces in the development of the higher types of pleasure and recreation is consequently thoroughly justified, even upon the basis of the crassest "practical" philosophy.

3. (*b*) A second type of justification leads through rather more devious channels. The social life demands a readjustment of individual tastes, appetites, and desires, — a readjustment for which the organism has not as yet become "naturally" adapted. That is, man has instinctive tendencies that need a certain degree of gratification in their own right, and irrespective of any bearing that they may have upon social life, save that denying the gratification will render the social and practical adjustments less efficient than they would be otherwise. Just as religion is justified for other reasons than simply that it is a moral agency, — just as religion answers a deep and fundamental human need, irrespective of its broader socializing tendencies, — so the higher forms of enjoyment satisfy a need that is, in some individuals, just as fundamental. The social criterion need not be disregarded even in this justification, which seems so largely an individualistic matter.

As has been pointed out above, social and economic adjustments would be less efficient if this value were not realized. While the individual must live for the race, and while individual action must be consistent with social welfare, this principle would defeat its own purpose were it blind to the fact that the individual must live his own life and that the rewards of this life must be individually as well as socially worth while. The task of socializing education is to see to it that the individual develops tastes, the gratification of which is consistent with social welfare, and that, through lack of stimulus and exercise, the tastes that are inconsistent with this welfare be allowed to atrophy.

It is an acute observation that the real test of a man's character is not the way in which he does his daily work, but the manner in which he spends his leisure. Like all aphorisms, it probably overshoots the mark, but it certainly reveals a very important factor that is likely to be neglected in education, especially when education labors under the stress of increasingly heavy demands for "practical" instruction and training. There can be little doubt that some forms of social inefficiency owe their existence to the neglect of this factor. The almost incredibly large amount of money that is annually expended in providing amusement for the "masses" must be regarded on the whole as an economic waste. Certainly it does not return in heightened buoyancy and increased efficiency an adequate dividend upon the investment. The spectacular methods of enjoyment always tend to be demoralizing, — to degenerate rather than to uplift. The appeal to the lower instincts is profitable because the lower instincts are the common property of all. The appeal to cultivated

tastes is far less profitable because cultivated tastes are both specialized and uncommon. The task of education is to cultivate tastes of the higher orders, but appreciably to raise the standard of the masses is a Herculean undertaking. Certainly the forces of education seem so far to have had little influence in this direction.

4. What materials of education are available for the purpose of fulfilling appreciative and recreative functions? Literature, art, and music naturally come first to mind. If tastes can be developed that will be satisfied by the best (and only by the best) that art in any of its forms can provide, a long step has been taken in the right direction. With respect to art, literature, and music, it cannot be said that educational activities having as their purpose the development of such tastes have been eminently successful. Literature has been "taught" with this end in view for a generation, at least; and, while some success has undoubtedly crowned the efforts of exceptionally capable teachers, it is hardly to be doubted that as many pupils have been turned in quite the opposite direction from that desired. For the time, energy, and money expended in the teaching of music in American schools, there has been a very small return in musical appreciation. Art, as we have already intimated, does not lend itself to the ordinary methods of presentation, as do literature and music, and hence has seldom been seriously attempted from the point of view of appreciation. Where it has been "taught" with this purpose, the results have perhaps been more encouraging.

5. The reasons that lie back of these admitted inadequacies cannot be exhaustively treated in this place, but certain broad principles may be noted. (*a*) The technique of teaching has hitherto concerned itself almost exclusively with that phase of the educative process that we have termed "instruction" rather than with the phase of "appreciation." The orthodox methods of presentation are didactic and "intellectual"; their essence lies in the very fact that the emotional factors are placed in the background. While methods of instruction that are measurably effective in promoting the ends of instruction have been developed and applied, it has not been generally recognized that these methods are valid only with reference to the subjects that are instructional in their function. They have been extended to cover every other possible phase or aspect of the educative process. Consequently, when the demand came for the teaching of literature and art, the first recourse was to apply the methods with which teachers were already familiar and which they had used successfully in other fields. The recreative functions of music, literature, and art can never be adequately fulfilled until teachers have mastered the technique of teaching for appreciation. Unfortunately, this variety of technique has not yet been reduced to an organized body of principles; consequently it is difficult to train teachers in this phase of their work. A beginning has been made, however, in the mere recognition that there is such a form of school exercise as an "appreciation lesson," [1] and there are certain principles of technique

[1] Cf. p. 63 above.

that can be derived merely from the implications of this name.

6. (*b*) Another factor that has militated against the realization of the recreative values has its basis in an unjustifiable extension of a principle which, if limited to its proper sphere, is thoroughly valid. It is true that school tasks must not appeal to the pupil as "soft" or "easy." If they do, his respect for them is lessened, and whatever he may gain, he is likely to look upon them as possessing little value. There is no principle of education upon which experienced teachers are more thoroughly agreed than this. On the other hand, when school tasks are given an *artificial difficulty* because of this principle, it is equally certain that one's purpose will be defeated. The teaching of the subjects that should fulfill recreative functions has suffered from this factor. In the high schools and colleges, particularly, the competition among the various departments often impels the teachers of literature and art to place unnecessary difficulties in the pupil's way to the end that these subjects may command the respect that readily accrues to mathematics, the sciences, and other subjects intrinsically "harder." These difficulties consist sometimes in the compilation of elaborate notebooks, at other times in a tedious tracing out of allusions and hidden meanings by the aid of "notes," "glossaries," and "annotations"; but perhaps the method most disastrous to the realization of recreative values is the giving of long assignments under the impression, evidently, that the effort involved in overcoming quanti-

tative difficulties has the same educative or disciplinary value as the effort involved in overcoming qualitative difficulties.

The fallacy of this argument is obvious. Whatever educative value may inhere in the difficulty of a task is surely dependent *upon a recognition by the pupil of the worthiness of the result that comes out* of the effort. In other words, a series of tasks upon which the pupil concentrates, but from which he emerges *without the consciousness of conquest*, can do little to confirm in his mind the value of persistence and effort. Unless striving issues in results of one sort or another that appeal to the pupil as worth while, he will hardly be encouraged to idealize striving. Now with science and mathematics, the overcoming of difficulties does (or may) lead to a result that the pupil recognizes as thoroughly worth while. There are also certain kinds of effort and concentration that are essential to the enjoyment of literature and art, but it is hardly to be assumed that unconscionably long assignments issue in anything but weariness and perhaps disgust.

7. (*c*) A third factor that interferes with the fulfillment of recreative functions inheres in the very inconsistent and anomalous assumption that every teacher and every pupil can come to admire every form of art. This assumption expresses itself in the rigid prescription of the "masterpieces" that are to be studied during each year or semester of the course. Doubtless most pupils can be aroused to the point of interest if they have some one

from whom to "catch" the enthusiasm. But when the teacher himself fails to appreciate the beauty of the selection that he is " teaching," it is futile to hope that his pupils will do so. If appreciation is to be "taught" (or perhaps better, "caught"), the teacher must at least limit himself to those materials that he himself appreciates.

At this point it is evident that there may be a conflict of values. The conventional demands must be met, and these demands may, and often do, necessitate the teaching of certain literary masterpieces for which teachers have little liking. It is beside the question to say that they "ought to like them." One cannot force appreciation, and one cannot often lead pupils to appreciate what is presented by an unappreciative teacher. The problem can be solved only by giving up the conventional value entirely, or by permitting it to be realized through the most superficial kind of an acquaintance with the masterpieces in question. The fulfillment of recreative and inspirational functions will richly justify an expenditure of time and energy that would be quite unjustified in realizing a value that is merely conventional. In the latter case, as has been pointed out before, the more quickly the task is completed, the better, — provided, of course, that the value is limited to the conventional type; where a great deal is at stake, the problem assumes a different aspect, — although even here it is doubtful whether inspiration can come without admiration.

8. Recreative functions are not limited to art, music, and literature, but may come to inhere in any subject of the curriculum — although the æsthetic disciplines are peculiar in that their chief functions are inspirational and recreative. History, however, possesses large possibili-

ties from the recreative point of view. Again there is danger of a conflict with the conventional and inspirational demands. History as usually taught leaves with many of its immature students something that is akin to a prejudice against history as a recreative study. The fulfilling of conventional demands frequently encourages the most barren kinds of methods. Some of the blame must also be attributed to the factor that was found to operate so disastrously in the teaching of the æsthetic subjects; in the desire to make history "difficult," the fact has been overlooked that difficult tasks, if they are to appeal to the pupil as worth while, must issue in results that are clearly commensurate with the difficulties. Long assignments of collateral reading in history do not always or often issue in such results; nor does the elaboration of voluminous notebooks, nor the ineffective source work that is sometimes attempted in elementary and secondary schools. Whatever may be the cause, however, there can be little doubt of the inadequacy of some of the teaching of history in the lower schools from the standpoint of realizing its recreative values.

9. The recreative value that may inhere in manual training should not be overlooked, although it has not been strongly urged by those who have been most ardent in introducing the subject into the elementary and secondary curriculum. For the business or professional man, it would be difficult to find a means of recreation that would tend more effectively to turn the mind from the worries of the day's work than the recreative practice

of some handicraft. The realization of this value, however, will be dependent upon the methods that are employed by the teacher of manual training. Negative prejudices may be developed in the shop just as they may be developed in the classroom. And again there is the danger of conflict among different types of value. If manual training is conducted because of its assumed disciplinary function, it is quite likely to fail in developing recreative tastes.

It should not be inferred from this, nor from former criticisms of the same tenor, that the realization of recreative values is always to be considered as inconsistent with the realization of disciplinary and utilitarian possibilities. It is not true that a subject that is to appeal to the pupil as a means of recreation or diversion from the daily work of life must, for that reason, appeal to him as easy. It must, however, *leave him with an unequivocal liking for the pursuit.* If it appeals to him at first as difficult, the gradual solution of the difficulties must result in products that are essentially and unequivocally worth while. We have seen that disciplinary functions are probably to be realized only under the same conditions; consequently the two functions are not inconsistent. It still remains true, however, that they may work in opposition to each other in actual practice, for the pleasant terminus of a disciplinary process is not always recognized as essential to the fulfillment of the disciplinary function.

10. The subject of the elementary curriculum that has perhaps been most extensively taught with a recreative purpose in mind is nature study. Practically all authorities agree that one purpose of nature study is to reveal to

pupils the phenomena of nature in such a way that they will find the future observation and investigation of these phenomena a source of unvarying delight. No one can deny that the attempts of teachers to develop a sympathetic attitude toward nature have been very frequently not only futile, but quite disastrous, as far as the realization of their chief aim is concerned. In other words, nature study has only too often prejudiced the child against natural phenomena as a source of recreative enjoyment. Exceptional teachers, themselves imbued with an enthusiasm for observation and experimentation, have been able to communicate their own tastes to their pupils; but these teachers are not numerous. Here, as in the case of literature, the enthusiasm must be "caught," it cannot be "taught." But here, also, as in the case of literature, the teachers themselves may be led to acquire this indispensable qualification. Even possessing it, however, they may still fail of the desired goal. In all subjects in which the fulfillment of function is dependent, obviously and directly, upon emotional factors, the line of least resistance is toward methods that smack of " sentimentalism." No doubt much of the failure in teaching nature study has been due to a premature attempt to "force" appreciation, — to "rave" over beauties that the pupil cannot see, or — what is still more disastrous — to couple nature study with "goody-goody" sermonizing on kindness to animals and other virtues, which, however important in themselves, are often irrelevantly forced upon the pupil.

11. Concerning the other materials of the curriculum, it is probable that the dominant values are not of the recreative type. Arithmetic has, in times past, been occasionally taught as a source of recreation. Geography may certainly lend itself very effectively to the development of recreative interests (such as an interest in the history of exploration), but its chief value must be identified with another type. The more formal subjects, such as grammar and spelling, seem to be far removed from a general recreative functioning. Certainly if any of these subjects could be made to appeal to the pupil as sources of recreation, the procedure would be thoroughly justified in so far, of course, as it did not interfere with the realization of their more important values.

That the study of foreign languages in the secondary schools leaves with the average pupil a positive prejudice in favor of such study as a recreative pursuit would be an absurd contention. Whenever pupils can be properly led to the appreciation of the literature of these languages, the recreative function should perhaps be considered of prime importance, but the situation, in so far as the present-day teaching in the high schools is concerned, seems well-nigh hopeless. Certainly other functions are adequately fulfilled, but no one of these would be inconsistent with such teaching as should leave with some of the pupils, at least, an unequivocal liking for foreign-language study.

CHAPTER XIV

Values to be Realized in Fulfilling Interpretive Functions

1. It will be recalled that "attitudes" and "perspectives" were recognized in an earlier chapter as representing an important type of conduct-controls, and that the educative materials engendering these controls were ascribed an "interpretive" function. As was there suggested, this rubric is of paramount importance to educational theory. It has been difficult hitherto to account satisfactorily for the recognized value of a large group of educative materials, — a group so large, indeed, that it constitutes the major part of the curriculum of general education. In many cases, these materials have been justified because of their "culture" value, but this justification has been very unsatisfactory: in the first place, the word "culture" itself is very far from unequivocal and definite; in the second place, the word is associated in many minds with luxury and a certain measure of freedom from the cares and responsibilities of economic life; and in the third place the idea of culture is not easily harmonized[1] with the ultimate aim of social achieve-

[1] Ruediger, for example, rejects the social aim of education chiefly because it justifies the cultural and æsthetic subjects "only indirectly." (*Principles of Education*, p. 60.)

ment without virtually implying an individualistic criterion, and thus effectually repudiating the social standard.

2. The influence of attitudes and perspectives upon economic and social adjustment may be made clear by the differences in quality of conduct between the "liberally educated" man and the narrowly educated man. From the point of view of adjustment, one virtue of "liberal" knowledge lies in its relation to the detection of situations. In other words, it is not alone the *solution* of situations that is important; before a situation can be solved, it must be *recognized as a situation.* One may be thoroughly conversant with the principles of hygiene, for example, and have the will to apply them to the betterment of one's life, and yet fail to detect the point or points where the application "fits." The perspective in which one views the situation gives it the unique coloring which largely dictates the nature of one's adjustment. This perspective is the conduct-control that is particularly likely to be determined by general education.

This is clearly shown in an instance cited by Pillsbury.[1] "A large part of what we ordinarily call a good memory consists in . . . this ability to think of the right thing at the right time. The invention of the steam engine was assured when a possible use for its energy was suggested by the force that the steam from the mouth of a teakettle exerted. Many men knew of the value of force in general, and many men had observed that

[1] W. B. Pillsbury: *Attention,* London, 1908, p. 145. (Italics mine.)

a straw would be bent by the steam from the spout, but no man had analyzed the characteristic of force, and had the suggestion of a practical application at the same time. All other elements were present in the mental content except the right conditions of attention to bring about that analysis, and to direct the train of associations into that particular path. This hung upon the presence of just the right knowledge and *just the right attitude* toward the problem at that time. Being in possession of the fact is not sufficient. . . . Even in the schoolroom inability to answer questions is not so much lack of proper knowledge as inability to see in the question the proper cue to the answer, and lack of the proper related knowledge that will direct the associations to the particular fact desired. All this, of course, depends upon earlier experiences, *upon knowledge in general* . . .; it is not lack of the particular bit of knowledge in question, but of the more *indefinite* and widely distributed *general knowledge*, that shall make the particular effective at this time and in this connection."

It would seem that the type of control that Pillsbury has in mind here is quite identical with what we have just termed the attitude or perspective, and it is clear from his analysis that general education is well adapted to furnish these important factors.

3. Another relation between "general knowledge" and social and economic efficiency is suggested by what may be described as "negative adjustment." It is natural to think of conduct or adjustment as limited to the positive direction of energy. We reflect this notion in our national ideal of the strenuous life. Action is associated primarily with movement, although, psychologically, action may be the inhibition of movement.

Both economic efficiency and social efficiency are as thoroughly dependent upon "negative" as upon "positive" adjustment. To the man of liberal education, the environment is reduced to a certain measure of law and order and system. Situations which the ignorant are led by fear or curiosity or imitation to attempt to solve, and which are frequently solved most inadequately, either do not appeal to the educated man as having immediate reference to his needs, or are quickly and adequately put out of the way, — subsumed under the appropriate concept or principle that covers them.

Thus one who has mastered the fundamental principles of the natural sciences may say quite confidently that he can find in the special vocation of his life no opportunities to apply the knowledge that he acquired at the cost of so much time and effort. And yet in the course of his workaday life, this knowledge is certainly functioning, not in judgment-processes, it is true, but in attitudes and perspectives, which influence profoundly his adjustment. The phenomena which puzzle, irritate, confuse, or bewilder the ignorant and unenlightened do not trouble him. Where the former see situations which are not significant to their economic and social needs, but which simply hark back to a primitive instinct, he is oblivious to the stimuli; and where they fail to see situations which are significant to their economic and social needs, he detects such situations.

A personal example may serve to clarify this conception. More than once the writer has seen "ghosts"; that is to say, he has had the experience which, if he had not been able to interpret it rationally, would have stimulated him to a mystic and supernatural explanation. He has recognized as an hal-

lucination what another man might call a ghost. He would now be a firm believer in spiritism and its attendant superstitions, had not his knowledge of psychological laws furnished him with the rational explanation. Nor is the explicit subsumption of the phenomenon under a general principle or concept essential to the functioning of his psychological knowledge in situations of this sort. Occasionally the judgment may be explicitly made; but more frequently the knowledge functions as attitude or perspective either in decreeing that the phenomenon shall not become a situation demanding adjustment, or in making the adjustment quite different from what it would be were a similar phenomenon presented to one lacking the knowledge.

4. The fundamental social significance of general education in freeing man's mind from the incubus of fear, dread, superstition, fraud, and error has often been noted, but its clear relation to efficient conduct has never been sufficiently emphasized. Both fear and curiosity must always be reckoned with in determining the materials that are to be utilized in the educative process. The human mind craves knowledge, — craves to know the deepest meanings and significances of the forces that operate upon the organism. And even if these forces have no immediate significance to life or adjustment, nature has wisely implanted the instinct that impels man to seek them out, to identify them, to classify them, to arrange them in system and order in case they should happen, under some future condition, to prove significant. The need for "pure" science is just as fundamental and vital as the need for "applied" science.

Curiosity is as truly an instinct as hunger, and the spur of curiosity has been perhaps as powerful a force in the progress of the human race as the spur of hunger. Fear is stimulated by the strange and the unknown, and its depressing and energy-wasting influences are just as marked when the unknown is innocuous as when it is fraught with danger. It behooves man, therefore, to push his investigations into the unknown and the mysterious, even if there is no promise of an economic equivalent for the time and energy thus employed. It behooves him to make artificial situations where no real situations exist, — to attend to a minute distinction for the sake of the distinction, even though it may never become a cue for positive action. The fact that it has been explained and relegated to its proper place will, in the end, justify the trouble of explaining it; for even if it does not furnish a cue to positive action, it will, in any case, furnish a cue to negative adjustment, — it will no longer perplex and confuse, it will no longer be enshrouded in an irritating mysticism, or furnish a stimulus for superstition and its attendant evils.

A typical example of this craving for knowledge is to be found in the history of Arctic exploration. That men seem to be somewhat ashamed of their instinct of curiosity which has done so much for their advancement is evidenced by the excuses that each successive explorer in the Far North puts forth as a cloak to his real motive. Kane would seek for records of the Franklin party. The motive appears upon the title-page of his journal, but little evidence can be found in the record itself that he did aught but strive for knowledge of the

unknown lands and waters through which he attempted the conquest to the Pole. Nansen asserts emphatically that the location of the North Pole is but a subsidiary object of his trip. Only with a few of the adventurers into these forbidding regions has the attempt to reach the Pole been acknowledged as the primary aim. Why it should not always have been a laudable ambition, it is hard to see. The North Pole undiscovered would always have been an irritation. Any unknown area of the earth's surface stimulates the spirit of discovery and exploration, and it is well for mankind that it should. It is true that the discoveries that are made may give but small financial returns for the labor and expense of making them, but this disadvantage is not limited to investigations undertaken from the motive of pure discovery. The long series of attempts to discover the Northwest Passage were impelled by economic motives, and yet they were thoroughly futile from the standpoint of positive commercial results. Nevertheless, their history forms one of the most priceless chapters in the record of human achievement. Nor is their value limited to the fact that they demonstrated the impracticability of the Northwest Passage as a commercial route, — a negative "cue" to adjustment that alone would perhaps justify the labor and suffering that they involved. The stimulating example of human endurance and persistence against heavy odds for the realization of a set purpose is not the least important among the results that have accrued to the work of Franklin, Parry, McClintock, and Amundsen.

5. Among the materials of the curriculum that fulfill most effectively these interpretive functions and thus realize fundamental social and economic values, the natural sciences stand preëminent. It is the chief function of science as taught in the elementary and high

schools to reduce the material environment to law and order in the minds of the pupils. It is in this sense particularly that the task of education is "enlightenment." It is in the sense that it is "liberalizing." As a climax of this process of reduction stands the study of philosophy, which attempts to correlate all sciences and to find the ultimate principle of unification. And the valuable resultant in every case is not primarily that mastery of facts and principles which will enable one to solve technical problems, although there is no reason why such a mastery should not be gained in so far as is consistent with realizing the more important functions; the important resultant, however, is a system of attitudes and perspectives which implies, as has been suggested, a systematic and rational mastery rather than merely that empirical mastery which is often sufficient for economic purposes, and which so often identifies itself with pure habit.

6. It is not true, however, that the interpretive functions are limited to the sciences. In the sense that they represent organized and coherent systems of human experience, all school disciplines possess these values in a larger or smaller measure: every art has its unique body of principles back of it; every art, in other words, has its science. The laws underlying literature, the principles that explain the potency of art over the emotions, the great universal principles that govern the development of civilization, — all these answer certain cravings of the human mind to know and understand.

7. The interpretive function of history is of primary importance in the phases of historical instruction that are represented by the advanced elementary and secondary courses. As was suggested in an earlier chapter,[1] the viewing of present situations in the light of their genesis, — through a perspective of the events that have led up to them, — modifies in a marked degree one's adjustment to these situations. The emphasis upon causal relations which is the central feature of the teaching of history in the upper grades and in the secondary school has for its function the furnishing of such a perspective.

This interpretive function is emphasized by most of the recent writers upon the teaching of history. Thus J. W. Allen[2] contends that any real knowledge of history "should help us with all those speculations and inquiries which turn upon matters social and political. Such knowledge should enable us finally to rid ourselves of many superstitions, — of modern superstitions concerning authorities and majorities, as well as of antique, surviving superstitions concerning nobility and claims of right. It will help us to reckon progress from the Stone Age instead of from the day before yesterday. It will help us to separate the idea of progress from the idea of mechanical achievement and from any particular forms of progress which happen to be immediately familiar to us. It will assist in altogether destroying the ludicrous superstition of our own immense superiority as compared with those who have

[1] See above, pp. 67 f.

[2] J. W. Allen: *The Place of History in Education*, New York, 1910, pp. 160 ff.; cf. also H. E. Bourne: *The Teaching of History and Civics*, New York, 1909, pp. 87 f.

gone before. . . . It will show us institutions in the light of their origin. . . . It should help us to see all social facts in a due proportion."

And just as each specific art has its science, — has its body of underlying principles which make meaningful the practices that it embodies, — so each art has its history, a proper knowledge of which will provide one with a time-perspective upon the work that one is doing. How important these historical perspectives are to specialized efficiency can be determined only by careful experimentation, but it is safe to hazard a guess that one's conduct is appreciably modified in the direction of enhanced efficiency by viewing each problem that one confronts in the light of its genesis, and in the light of its relations to human life in general. Again it should be urged that this does not always or often involve a judgment process. The function of a perspective, as has already been urged, is to modify one's interpretation of the situation, and this is accomplished by the presence of an attitude rather than by the explicit recall of ideas and principles. But these important attitudes are the resultants of explicitly understood ideas and principles.

8. Nor are interpretive functions confined to science and history. Literature as such provides a perspective upon human life that nothing else can give. It is perhaps the chief educational function of literature to crystallize the ideals that, after all has been said, must form the pillars upon which society rests. But in the assimilation of these ideals, youth also gains a perspective upon

human life that may serve very profoundly to modify his conduct. Social situations are different to him than they would be otherwise. Men and women may even be classed into types, of each of which some character, sketched by the master hand of the dramatist or the novelist, stands as a representative. Shylock and King Lear, Faust and Wilhelm Meister, Becky Sharp and Hester Prynne, Colonel Sellers and Mr. Micawber, — these and the other great characters that stalk through the pages of imaginative literature form the centers about which may be grouped the men and women of real life. And the youth who has the power to read human nature through this perspective is profiting by the experience of the few great students of humanity, who have left in these characters the results of their investigations, just as the youth who reads the principle of gravitation or the principle of evolution into natural phenomena profits by the experiences that only a Newton or a Darwin were competent initially to undergo.

It is in the light of so sweeping a generalization as this that one is likely to ask: "If everything that can possibly be taught possesses some sort of value, why waste time in analysis and classification? Why not take value for granted and let education work out its salvation unhampered by finely spun theories?" It has already been suggested that such a study should throw light upon the problems of method, but now we have, in the discussion just completed, a justification for the study of values irrespective of any possible influence over specific and technical adjustments. Like workers in other departments of life, the educator must reduce *his* world to system and

order. As in other arts, so in education, one must recognize the essential worth of unifying principles, even though the direct influence of these principles may be called into question. The factor of "negative adjustment" and the craving to know and understand are as fundamental to the teacher's work as they are to other departments of human activity.

9. There is still another aspect of the interpretive function that demands recognition and emphasis. The realization of what the writer once termed "theoretical values" [1] really depends upon the development of attitudes and perspectives. The effective recall and application of facts and principles has been proved by the investigations upon memory to be dependent very largely upon the degree in which these facts and principles have been "organized," — upon the unity of "meaning" which binds them together. In other words, the recall and application, even of the specific facts that are to function in specific judgments, depend in no small measure upon the "matrix" of attitude in which they are embedded. One does not always distinctly recall the concrete experiences from which have been derived the general principles that one employs when these principles are used in judgment processes, but the possibility of recalling these principles and of applying them effectively is dependent upon the fact that they have at one time or another been explicitly based upon concrete experiences. And the inverse relation similarly holds: one recalls specific and concrete facts the more readily if these have

[1] Cf. *Educative Process*, p. 233.

been grouped and organized about the large units of meaning, — about penetrating and comprehensive principles.

This value of organization and unity in promoting recall and application is so clearly evident from the memory investigations that it may be looked upon as firmly established. The ease with which "meaningful" materials are fixed, retained, and recalled as contrasted with "nonsense" materials, the superiority of the "total" as contrasted with the "fragmentary" methods of memorizing, and the increased efficiency which is afforded by any factor that will group, organize, and relate the materials that are being "learned," — all these facts go to show the fundamental significance of this "matrix" of meaning and unity which we have identified with attitude.

CHAPTER XV

The School Environment as a Source of Educative Materials

1. In the foregoing chapters, reference has most frequently been made to the curriculum of the schools as the source of educative materials. It must not be assumed, however, that the formal curriculum is the only source of such material, nor is it the only source that the educator can control.

One of the most important movements in modern education has been the increasingly explicit recognition of the educative influence of the life of the school itself, apart from the content of the formal curriculum.[1] This recognition has been due, in part, to the abandonment of the older conception of education as essentially a process of instruction in knowledge, and the development of the broader conception of education as a process of adjustment to the social life. It has also been influenced by the spirit of the great English public schools, which, in answer to the demand placed upon them for a particular type of product, have met this demand

[1] Cf. J. Dewey: *The School and Society*, Chicago, 1899; C. B. Gilbert: *The School and Its Life*, New York, 1908; M. V. O'Shea: *Social Development and Education* Boston, 1909; C. A. Scott: *Social Education*, Boston, 1908.

through the development of a unique type of school life rather than through a change in the formal curriculum.[1] And finally, the example of the higher institutions in developing student-organizations has been imitated in the lower schools with the result that secondary education, especially, must reckon with the educative influence of school life if it would not have the influence of its formal curriculum stand in grave danger of at least partial nullification.

2. The controls of conduct for which the general life of the school must stand sponsor are to be included almost exclusively under the two rubrics, habits and ideals. For the most part, however, the habits are the products of the ideals, and consequently will demand little direct attention in their own right.

That the ideals formed by companionship and social contagion during the years of early adolescence are among the most effective and influential conduct-controls of early maturity, there can be little doubt. The standards of courage, endurance, hardihood, truth, chastity, personal honor, and moral rectitude, as well as the more specific ideals of cleanliness, industry, accuracy, and the like, formed during these years are almost certain to be the directive forces of conduct, at least until

[1] Cf. J. J. Findlay: "The Corporate Life of the School," *School Review*, vol. xv, pp. 744 ff.; vol. xvi, pp. 601 ff.; H. B. Smith: "Methods of Moral Instruction and Training in English Public Schools," in *Moral Instruction and Training in Schools* (Ed. M. E. Sadler), London, 1909, ch. xii; J. Welton and F. G. Blandford: *Principles and Methods of Moral Training*, London, 1909, ch. vi.

the struggles of gaining a livelihood lead to their modification. The "illusions" of youth may have little justification in the conditions of adult life, but it still remains true that they have been, and doubtless always will be, controlling factors in the destiny of human society. They furnish a perspective through which the most vital situations of life are viewed, and while it is true that this perspective may sometimes distort reality, it is also true that the distortion may indicate more clearly than anything else the condition into which man should strive to mold reality. The hope of the future must lie in the character of the ideals with which youth is inspired, and since these come probably more numerously and certainly more effectively out of the social environment of youth than out of the formal instruction to which youth is subjected, the importance of the social life of the school can scarcely be overestimated.

3. It is true, of course, that the educator is here brought face to face with a problem over the conditions of which he seems to have little control. Every overt attempt to force adult standards prematurely upon the young is bound to be abortive, and the educator is thrown back upon indirection, — and indirection, from its very nature, is fraught with uncertainty. We are here beyond the range of the reasonably predictable: the indefinite and unmeasurable factors of "personality" control the situation, and the best-laid plans may miscarry at a juncture that could never have been anticipated as critical.

The success of the English secondary school in dealing with this problem is doubtless due in some measure to the minimal degree in which overt adult direction has entered into the non-scholastic activities of the school life. And yet, there is little doubt that there has been some indirect control. The problem is somewhat simplified by the fact that the typical English secondary schools are boarding-schools, and consequently make possible an elimination of parental indulgence, and the creation of an *esprit de corps* that is only with difficulty reproduced in a day school. The instincts which lie at the basis of the ideals of virility and hardihood are consequently given a range of freedom in expression which would not be possible under American conditions. The checks to this freedom are "natural" rather than artificial, in the sense that they develop through the individual's recognition of the fact that freedom must be controlled if social welfare is to be preserved. The type of leadership that encourages such control is consequently given an effective social sanction. The ideals for which these leaders stand come to be adopted as standards of conduct by the followers, and the result is the development of a mass of traditions and prejudices which are the direct outcome of generations of school life and which the pupils recognize as products of that life, and consequently as belonging essentially to their own order.

Among the pressing problems of genetic psychology there is none more significant to secondary education than to formulate the laws that govern the development of these standards. There seems to be almost an instinctive tendency among youth to resent the implication that they have anything to learn from the experience of their elders. Whether this is a variant of that strong individualistic instinct which resents an intrusion into the sphere of the self (as if youth felt that its own experiences were its own property and that replacing them by the experiences of others invaded property

rights), or whether the impulse is merely the result of educative efforts that have been misdirected, there can be little doubt either of its universality or of its profound significance to the problems of adolescent education.

4. So much, at least, is true — the dislike of youth for adult direction in its activities is prominent among the "given" factors of the problem under discussion. What other factors can be included in this list? First of all, the strong and effective group-impulses, — impulses toward organization, — demand recognition. It is these that constitute the most hopeful elements of the situation. The adolescent is primarily a social animal, and he will organize his fellows into clubs, teams, or gangs if a significant measure of freedom is allowed him. From these self-organized groups, the natural leader will inevitably emerge, and this natural leader will dominate and color the standards and ideals of his following in a degree that is seldom realized in adult groups, — except perhaps in abnormal instances, such as the rise of a new sect in religion, or the appearance of a "one-man" party in the political field. From the practical point of view of school management, therefore, almost everything lies with the indirect influence which the teacher or the principal can exert over the leaders. Occasionally, perhaps, this influence may be direct, and in this case the situation presents no difficulties; but, unfortunately for the teacher's peace of mind, this condition is met with very infrequently. The men and women who have the peculiar personality to influence

the natural leaders of youth are rarely found in the schools.

5. A third factor which enters into the problem is the desire of the adolescent to be considered as "grown-up," and to be accorded the privileges that he considers the prerogative of manhood. That privileges, in the normal course of social life, are always at least counterbalanced by responsibilities, is a lesson that only experience can teach. The adult well knows that the responsibilities in most cases far outweigh the privileges, and many who "enjoy" privileges under these conditions would willingly surrender them if by so doing they could escape the responsibilities that go with them. But youth sees only one side of the picture. It is all part and parcel of the "illusions" to which the adolescent is subject, and which he must correct, often through painful experience.

It is this factor which renders the high-school fraternity question so difficult of solution. The social scheme of adult life is governed by certain standards which, however much one may deplore them, must be admitted to fulfill certain very essential functions. However much it may be abused, there is a need for that disapproval of unsocial and disintegrating tendencies which is expressed by the social ostracism of those individuals who do not conform to the essential conventions. Because such ostracism all too frequently works a grave injustice, it is not to be concluded that it fulfills no useful function. There is also a need for maintaining a certain social stability, and this

need requires that a man or a woman must merit recognition before it is accorded him. "Exclusiveness" has its part to play in maintaining this stability, although again no one will deny that this specific factor frequently operates in a most blundering and inequitable fashion. But such forces as social ostracism and social exclusiveness can be justified only in an adult society where a multitude of conflicting forces tend to equalize opportunity, and where the ability to achieve distinction of some sort can, in a bare majority of cases, at least, come into its own. In the school, the operation of ostracism and exclusiveness is commonly based upon a non-reflective imitation of adult forms; consequently the "snobbery" that is engendered by the high-school fraternity becomes a pitiable caricature. It has no purpose, no function; it merely copies the form and misses the meaning.

As suggested above, the English secondary school escapes the baneful influence of the high-school fraternity, or whatever its analogue would be under English conditions, by developing a social institution within the school that really has a function of its own. Feelings do not always escape unhurt in English secondary schools any more than they do in the American high school, but the hurt feelings of the English boy are not a useless by-product of a still more useless process as is the case with us. Social distinction there depends upon some form of achievement in activities closely limited to the school life. The field is free and favoritism is at a discount. Capacity alone decides whether a boy shall be eminent among his fellows, or whether he shall be an outcast. Nor does the contrast cease at this point. With the English boy, social distinction carries with it social responsibility, just as it does under the

conditions of normal adult life. In the American high school, on the contrary, social distinction carries with it a still wider license, — a responsibility, if you will, to "make good" in unsocial and disintegrating activities.[1]

It is perhaps unfair to single out the high-school fraternity for criticism of this sort, without including in the indictment its prototype, the college fraternity. And yet there is a difference between the two cases, and this difference bears directly upon the point at issue. The college fraternity, like the social organizations of the English public schools, fulfills a certain function, which, if not indispensable, is at least useful. There have been periods in its development when it was open to the same charges that now confront the high-school fraternities. There are doubtless many college "chapters" to-day that could be justly indicted on the same grounds. But, on the whole, the college fraternity has found its place. In spite of its tendencies toward social snobbery, and in spite of its encouragement of ideals that are often un-American (to

[1] The deplorable moral conditions in many American high schools have been very important factors in the crusade against the fraternity evil, and yet, in spite of the revelations that have been made public, the worst has, so far as the writer is aware, never seen the light of print. At an executive session of the Council of the Religious Education Association, held in Cleveland, July, 1908, a report was submitted by a special investigator who had spent a year in probing into the student-life of some of the best known American high schools. The conditions that were revealed were not only shocking in the extreme, but far more general and widely spread than is ordinarily believed. In the great majority of instances, the very existence of these disintegrating and depraving forces was entirely unknown to the officials of the schools in question. That the situation in the English public schools in this regard is not above criticism, one may infer from the writings of Ellis and other authorities upon sex-hygiene, but it is doubtful whether even with the boarding-system, the conditions are so alarming as in some American schools. Certainly the danger of venereal infection and its consequent evils is not so great.

say the best for them), the college fraternity commonly stands for decency, fair-dealing, and the recognition of real merit. It is not so proud, perhaps, of its honor-men as of its football heroes, but it places a premium upon achievement, and even if it fails to satisfy completely the needs of social life in the colleges, it is, on the whole, a positive rather than a negative factor in that life, and in this respect it stands in marked contrast to its analogue in the high school.

6. It is fair to assume that, out of the social life of the school, certain very effective ideals and standards may emerge. What are some of these standards and ideals? First and most important, perhaps, is the prejudice in favor of social conduct itself. When men and women dwell together in a close community of interests, social welfare and progress demand the sacrifice of individual caprice and whim. School life can and, even under otherwise unfortunate conditions, usually does, impress clearly upon the pupils' minds this fundamental standard. The spirit of hospitality is the unerring sign of gentle breeding. One of the finest and most priceless products of effective home training is the willingness of the individual to spare himself no pains in courtesy toward those who seek entertainment under his rooof. One of the most important products of school life is somewhat analogous to this. It is the disposition to put forth the effort that is essential to make oneself a welcome member of the group. School life normally affords innumerable opportunities to teach this lesson in the most effective way, — that is, by the actual practice of the virtue itself. It does not need to be forced; indeed, it scarcely can be forced without defeat-

ing the desired end. But the spontaneous tendency toward forming groups will, if given the slightest freedom in which to operate, supply the essential conditions, and the development of the standard will follow as a matter of course.

This is not to say that the teacher can leave the matter to work itself out. The necessary stimulus must, of course, be provided in the way of a certain measure of freedom; and here, as elsewhere, there is abundant scope for the direct influence of adult example. In the metropolitan high school, especially, the avenues through which socializing influences may issue in most praiseworthy results are innumerable. It may not be necessary to arrange for social gatherings of pupils in the evenings, but if this can be done, and if the gatherings can be made to preserve a simple and democratic form, the opportunities for training are of inestimable value. If public opinion in the community is not strongly against it, the organization of school dances, held in the building under the patronage and supervision of the teachers, will teach the social amenities in a way that, so far as effectiveness of result is concerned, can hardly be equaled. The delight in rhythm is one of the fundamental traits of youth, and the dance is a world-old educative force that modern civilization can hardly afford to cast aside. Experience points strongly to the conclusion that the evils associated with dancing are not at all inherent in its nature, but are rather to be considered as perverted products which owe their poison entirely to extraneous factors. It is as unfair to associate them necessarily with dancing as it is to hold any other basic human impulse responsible for its perverted and unwholesome expressions.[1]

[1] Cf. M. V. O'Shea: *Social Development and Education*, Boston, 1909, pp. 341 ff., particularly with reference to the dangers of narrow range of dances sanctioned by present-day "society."

7. Another set of standards that may be encouraged by appropriate social conditions in school life are those that involve the ideals of self-government. It is in providing opportunity for the effective development of these ideals that the English secondary schools are superior, and, as suggested above, it is the element of responsibility that is the important factor. School life, if it is to form an adequate training-ground for adulthood, must always associate freedom and individual initiative with a rigid responsibility for results. The doctrine of spontaneity has too often been applied without this essential qualification. Under such conditions, its outcome in school life, as in the larger social life of adult society, can spell nothing else than anarchy.

The essential condition for the development of these ideals seems to depend upon the degree in which the situation appeals to the individual as a real situation. Perhaps when this condition is best realized, the situation may be vastly more "real" than it will ever become to the average pupil in later life. That is, the functions of adult self-government, except at critical junctures, are notoriously mechanical and often quite abortive of the ends sought. The average citizen feels very lightly his responsibilities in these matters, as every investigation into the phenomena of corrupt politics abundantly testifies. But the development of self-government in the smaller circle of the school may do much to reform this defect of our institutional life. Certainly the well-tested results of the experiment as worked out in the George

Junior Republic and similar schools seem sufficient to warrant a hopeful outlook.[1]

How this reality of the situation may be brought about in the average American high school is a difficult question to answer. Certainly it will not be brought about effectively simply by surrendering the conduct of school affairs into the hands of the pupils. This introduces an artificial element at the very outset, for the pupils soon appreciate the fact that the school officials have only set them a game to play, and that these officials will step in and assume control if matters are not arranged to their satisfaction. The game pleases for a time, like other games, but it soon loses its novelty, and the routine that was so fascinating at the outset quickly begins to pall.

Even under the best conditions, the same enemies of good government that work havoc in adult society make a very early appearance in the self-governing groups of pupils. Political chicanery, log-rolling, ballot-box frauds, and all the well-known attendants of popular government quickly begin their deadly work, — the more deadly because pupils are likely to see how easily the machine may be manipulated for private profit, and so gain a permanent first impression which is likely to defeat the very end that is desired. But the situation would not be "real" without these factors, and the question naturally arises, Is it wise to risk the premature formation of negative ideals and undesirable standards for the sake of subjecting pupils to a training, the positive results of which are so much a matter of doubt ? [2]

[1] Cf., however, the discussion of this problem by C. A. Scott, *op. cit.*, ch. iv.

[2] It is only fair to say that the writer's attitude toward self-government in schools is prejudiced by his own experience as a student-participant in such an experiment. The conditions of this experiment were, on the surface, most favorable for the development of a feeling of respon-

It seems quite rash at the present time to pass judgment, favorable or unfavorable, upon the experiment of pupil self-government in elementary and secondary schools. It may be that something akin to the English system may be worked out and found adaptable to American day-school conditions. The proposals of Principal Findlay [1] are extremely suggestive in this connection. Until definite results are assured, judgment should he held in abeyance.

There is still, however, one group of school activities which satisfy the conditions in a reasonable measure, and in which experience has proved beyond the shadow of a doubt that wholesome results can be obtained. The literary and athletic societies form a field for the exercise of pupil-initiative that is sufficiently wide, it would seem, for all practical purposes. These societies may either

sibility for law and order upon the part of the students. The situation was as thoroughly "real".as could be imagined, for a real need existed for government, and the students took the matter into their own hands very largely in self-protection. For the majority, however, — and the writer confesses membership in this class, — the responsibility was far too great. From a sober attempt to solve a real problem (and, at the beginning, a most successful attempt) the movement degenerated into a disgraceful competition for office, accompanied by a relaxation of all discipline. The "administration of justice" became a travesty, and the whole movement quickly assumed the character of *opera-bouffe*. The case may be quite exceptional, but to the writer it seems to typify the inevitable result of placing real authority in the hands of adolescents, who are not sufficiently experienced to appreciate the trust. Perhaps if it had lasted a little longer, a counter-reform would have done away with its unfortunate accompaniments, but there are obvious limitations to the risk that it is wise to incur, no matter how desirable the possible outcome.

[1] *School Review*, vol. xvi, 1908, pp. 601 ff.

be formed spontaneously as an expression of the organizing impulse of adolescence, or encouraged and initiated by adult direction. The former type fulfills best, of course, the conditions of a real situation. The college fraternity illustrates this spontaneous grouping developed by tradition into something quite different from its original form. Its function is social in the narrow sense, rather than literary or athletic, but there is no reason why the same rule of growth might not operate with organizations of the latter class. As the spontaneously formed organization gathers a mass of tradition back of it with successive generations of students, it acquires much of the dignity of age and experience, while, at the same time, the individual initiative and responsibility of its active membership are in no wise diminished. In other words, the organization, while ripened by generations of experience, still appeals to the individual active member as essentially *his own* — as something in which he may have the pride of copartnership which is entirely foreign to the organizations initiated and controlled by adult influences.

8. Finally, it is scarcely necessary to emphasize the importance of the social life of the American public school as an agency in perpetuating and strengthening the ideals of democracy and equality of opportunity which our educational system represents and expresses more faithfully than does any other institution that our national life has developed. If these ideals are to be kept alive as dynamic factors in the control of conduct, each generation must be imbued with them, not only through vicariously reliving

the past in the study of the historical events which led to their initiation, but also, and far more fundamentally, through feeling their worth and appreciating their strength as they operate in contemporaneous experience. In spite of the criticism that the American system of mass education levels down rather than up, no good American is willing to deny that the net result is a gain rather than a loss. The continental policy of separate schools for the various strata of society may, on the whole, permit a more effective employment of the factor of competition. If we assume that the better-fed and better-bred children are, on the whole, more capable of rapid progress, a system of education which places these children in separate schools will necessarily permit higher standards of scholarship and attainment than a system in which children of all classes are massed together. There is no doubt that the progress of a class is measured by the progress of those members that are below rather than above the average in ability. The brighter pupils are thus forced to mark time, and encouraged to rest upon very easy laurels. If the ability of the average can be raised, as may well be the case in segregating pupils in "select" schools, the brighter pupils will have a proportionately increased advantage in the fact that the level of competition is nearer their own capacities. But even admitting this contention (and it may easily be disputed), it is still legitimate to inquire whether the added advantage in the way of increased stimulus counterbalances the inevitable encouragement of aristocratic ideals.

Under the present organization of American elementary and secondary schools, the pupil is immersed for twelve years in an environment where class-distinctions are not recognized, and where every individual, whatever station in life his parents may occupy, has an equal share of attention from his teachers, an equal right to enjoy the material advantages that the community so liberally provides, an equal opportunity to achieve whatever distinctions may result from diligence and application. The ideals and prejudices in favor of democracy which grow out of this experience represent the most precious heritage of our national life, and, as has been suggested, the surest way to guarantee the perpetuation of this heritage is *systematically and institutionally* to surround youth with an environment through reaction to which the ideal is born anew with each generation. It may be true that some of our brightest pupils suffer from the lack of competition with their equals in mental capacity, but it is also true that others equally bright, but less favored by the conditions of birth, are receiving a much more effective stimulus than would be possible under European conditions. In the last analysis, then, probably more talent is trained by our system, although it may be true that markedly superior talent will stop at a slightly lower level.

The philosophy of American idealism as represented by the public-school system is, of course, only vaguely conscious to the average citizen who has never had the stimulus to think the matter through consistently. And yet, at least a dim marginal consciousness of its deeper meaning is evident in the op-

position which immediately meets any proposal to provide specialized schools for the children of the working classes. The problem of industrial education must certainly be met, but it is generally agreed that it is not likely to be met at the expense of the ideal of equality of opportunity. If industrial education means the establishment of trade-schools that will shut the door of possible advancement at an early age, our present system, with all its defects, is vastly to be preferred. Economic conditions may demand the specialized training of a predestined proletariat, but the duty of determining whether this demand is in line with the ultimate progress of the nation will not be left entirely in the hands of those whose private interests would naturally predispose them to see the immediate advantages of such training, and overlook its ultimate dangers.

9. As stated earlier in this chapter, the organic life of the school, in so far as this life is a positive educative force, may be counted upon to develop two important types of conduct-controls, — habits and ideals. This discussion has hitherto been concerned with the socializing ideals that may result from school life. It is scarcely necessary to say that these ideals or prejudices issue very largely from specific habits, and in turn, initiate specific habits of the same modality. The discussion of these habits, therefore, need not detain us long. From the objective point of view, however, one principle requires emphasis. It is manifestly essential to social welfare that the component individuals of any social group resemble one another in certain significant characteristics. It is well to lay stress upon developing individuality (provided that we have some definite conception of what we

mean by such a process), but an educational system that would differentiate individuals in any wide measure would be socially disastrous. An American child, reared in a Chinese environment, by Chinese foster-parents, would find himself very inadequately adapted to meet the conditions of American life. Placed at maturity in an American environment, he would possess an "individuality" that would quite preclude an effective social adjustment. In other words, social stability demands a certain "like-mindedness," — or, better, a rather complete resemblance among individuals in respect of dominant conduct-controls. Especially important is a "habit-likeness."

It is a peculiar function of the organic life of the school to fulfill this condition. The more closely schools resemble one another in certain important particulars, the more homogeneous and compact will be the body-politic. Here as elsewhere, of course, it is easy to see the danger that such condition involves. But here as elsewhere, the existence of the danger should not blind one to the manifest advantages that inhere in the condition. The task should be to determine the points where similarity is essential. Among these, the habits of morality, etiquette, speech, and the like, are clearly to be listed. Again, this harks back to the discussion of ideals and prejudices, for, after all, from the educational point of view, it is upon these factors that education must place its chief reliance.

INDEX

Ability, and genius, 83 f.
Achievement, capacity for, 94; as ultimate goal, 114 ff.; ideal of, 176; instinctive basis for, 163.
Acquired characters, non-inheritance of, 11 f., 14, 98 *n.*
Adams, J., 50, 53.
Adaptive instincts, 5 ff.; and ideals, 160; function of in education, 7 ff.
Adjustment, 1 ff.; negative, 231 f.
Adolescent characteristics, 246 ff.
Adopted sons, Popes', 84.
Ages, ideals of respect for, 136, 176.
Agriculture, as school subject, 148, 154, 202.
Aim of education, social, 108 ff.
Algebra, 123, 146 f. (*See also* Mathematics.)
Allen, J. W., 237.
Altruism, ideals of, 176.
Ambition, as an ideal, 178.
American schools, weaknesses of, in drill, 137 f.; idealism of, 165; social life of, 255 ff.
Amusement, economic value of, 219 f.
Analogy, danger of, in history, 142.
Ancient languages, 211 ff. (*See also* Latin.)
Andrews, B. R., 25.
Angell, F., 195, 196.
Annotations, use of, in teaching literature, 222.
Application, training in, 150.
Applied science *vs.* pure science, 204 ff.
Appreciation lesson, 63, 209.
Approach, economic, in teaching, 209.
Arithmetic, as school subject, 121, 123, 131, 133, 138, 154, 228.
Art, as school subject, 171, 220, 236; as source of ideals, 164.
Assimilation, 37.
v. Aster, E., 66.
Attention, in habit-building, 18.
Attitudes, xviii, 24, 65 ff.; of consciousness, 24, 31, 65 ff., 74, 229 ff.; and habits, 69; psychology of, 66 ff.
Authority, ideals of, 178.

Baldwin, J. M., 7.
Behavior, 1 ff.; human contrasted with animal, 3.
Bentley, I. M., 38.
Bewusstseinslagen, 66; as thought element, 31; genesis of, 35 *n.*
Bigelow, F. E., 148.
Biography, as source of ideals, 164.
Biology, as school subject, 147 ff., 202, 235 f.
Blandford, F. G., 243.
Book, W. F., 35.
Botany, as school subject, 147 ff., 187, 202, 235 f.
Bourne, H. E., 167, 237.
Bright pupil, problem of, 256.
Brothers, Pearson's study of, 90 ff.

de Candolle, A., 85.
Capacity, 100; and heredity, 94; generalized, 117.
Categorical imperative, 115.
Cattell, J. McK., 86.
Caution, as an ideal, 215.
Charters, W. W., 60.
Chemistry, 147 ff., 187, 202, 235 f.
China, influence of education in, 98.
Circular reaction, 7.
Civics, 149.
College, fraternities in, 249.
Colvin, S. S., 182, 201.
Composition, as school subject, 134, 146, 147.
Concept, definition of, 35; genesis of, 34. (*See also* Idea and Meaning.)
Concept-building, law of, 50.

Concrete teaching, virtues and limitations of, 49.
Conduct, xvii, 1 ff.; evolution of, 111 ff.; types of, 128; and inaction, 44; and happiness, 113.
Conduct-controls, xvii, 107; instinctive, 1 ff.; acquired, 14 ff.; specific habits as, 14 ff.; ideas and meanings as, 27 ff.; facts and principles as, 27 ff.; ideals and standards as, 54 ff.; attitudes and prejudices as, 64 ff.
Conquest, consciousness of, 223.
Consanguineal resemblances, 90 ff.
Conscience, social, 112, 126.
Conscious factor in transfer, 194 ff.
Consciousness, constituents of, 28 ff.
Contingent values, 122.
Continuation schools, 49 *n.*
Conventional value, 123 ff.; recognition of, 126; of habits, 135 f.; of knowledge, 151.
Cooley, C. H., 104.
Coover, J. E., 195, 196.
Correctness, grammatical, value of, 130.
Correlation, coefficient of, 90, 91 *n.*
Cultural values, 229 ff.
Culture, as a technical term in education, 229 f.
Curiosity, instinct of, 6, 234.

Dancing, as an educative agency, 251.
Darwin, C., 96.
Dearborn, W. F., 195.
De Garmo, C., 582.
Deductive development, 52.
Democracy, ideal of, 166, 235 f.
Development lesson, inductive, 52; deductive, 52.
Dewey, J., 35, 242.
Dickens, C., 169, 170.
Direct values, contrasted with contingent, 122.
Disciplinary functions, 180 ff.; defined, 119.
Disciplinary "values," 117.
Discipline, formal, doctrine of, 180 ff.
Domestic science, as school subject, 148.
Dramatic portrayal, and ideals, 169.
Drawing, as school subject, 131, 133, 145; mechanical, 122.
Dreams, Freud's theory of, 39 *n.*
Drill, 138; instinctive basis for, 7.
Duty, ideal of, 116.

Ebert, E., 194.
Economic efficiency, 148, 154, 181, 205, 208, 235; and attitudes, 230; and ideals, 156; and enjoyment, 217.
Education, and genius, 78 ff.; and habit, 43; and instinct, 12 f.; as conservation of experience, 14; and psychology, 116, 118; functions of, 96 ff.; general, and attitudes, 70; general functions of, 150 f., 230 ff.; limitations of, 78 ff., 102 ff.; religious, and ideals, 163.
Efficiency, psychology of, 199; of ideals, 60. (*See* Economic Efficiency and Social Efficiency.)
Eminence, conditions of, 82.
Emotions, as ingredient of ideals, 55 ff.; and conduct, 115; and ideals, 167; and religion, 172.
Emulation, 162.
England, as source of national ideals, 165.
English composition as school subject, 134, 146, 147.
English history, lessons from, 142 f.
English public schools, 242 ff., 245 ff., 248 f.
Environment, as factor in conduct, 3; and heredity, 78 ff.; as reflected in knowledge, 28; influence of, 85 f., 89, 93 f., 95, 99, 101; school, as source of educative materials, 242 ff.
Equality of opportunity, as ideal, 165; development of by school life, 255 ff.
Etiquette, habits of, 135.
Ethics, and education, 118.
Eugenics, 98 *n.*
Evolution, of conduct, 2 ff.; 111 ff.
Exceptions, prevention of in habit-building, 19.
Experience, as a factor in control of conduct, 3; reaction of, upon consciousness, 36 ff.; religious, 172; vicarious, 152, 167, 170.
Exposition, in teaching, 51.
Expository lesson, 52, 53.

Facts, as conduct-controls, xix, 27, 35 ff., 47, 119 *n.*, 139 ff.; definition of, 35; genesis of, 46; specialized utility of, 150; utility of, 139 ff.
Fear, instinct of, 162.
FINDLAY, J. J., 243, 254.
Focalization, in habit-building, 17.
Focus, of consciousness, and meaning, 33.
Formal discipline, 69, 117, 180 ff.; origin of doctrine of, 180 *n.*
FRACKER, G. C., 198.
Fraternity, college, 249; high school, 247 ff.
French, as school subject, 146, 228. (*See also* Languages.)
FREUD, S., 9, 39, 103.
FROUDE, J. A., 142.
FUERST, EMMA, 103, 104.
Functions, classification of, 119 f.; defined, 118; contrasted with values, 117; educational, 117 ff.; training, 119, 128 ff.; instructional, 119, 139 ff.; inspirational, 119, 156 ff., 180 ff.; recreative, 120, 216 ff.; interpretive, 120, 229 ff.

GALTON, F., 82, 83, 84, 85, 92, 100, 104, 105.
General education, functions of, 43, 150 f., 230 ff., 233.
Geneva, Illinois, Industrial School, 99.
Genius, and education, 78 ff.; as organic variation, 81 f.; and environment, 85 f.; and health, 100 f.
Geography, as school subject, 41, 42, 117, 123, 140, 151, 153, 228.
Geometry, as school subject, 123. (*See also* Mathematics.)
George Junior Republic, 252.
Germ-cells, variations in, 94.
German, as school subject, 146, 228. (*See also* Languages.)
German history, lessons from, 143.
German schools, 138.
GILBERT, J. P., 207.
Glossaries, use of, 222.
Good manners, training in, 135.
GOUGH, J. B., 144.
Grammar, as school subject, 124, 129 f., 140, 228.
GRAVES, F. P., 180.
Greek, as school subject, 123, 211 ff.
GROOS, K., 5.
Group instincts in adolescence, 246.

Habit-likeness, in society, 259.
Habits, xviii, 73, 119 *n.*, 243; definition of, 23; distinguished from ideas, 40 ff.; characteristics of, 15 ff.; in education, 20 ff.; of skill, 21; of manner, 21 ff.; and spelling, 16; and manual training, 21; generalized, 23; of thought, 23; and judgment, 26; as related to attitudes, 69; as controls of conduct, 15 ff.; utility of, 121, 129 ff.; preparatory value of, 133 ff.; conventional value of, 135 f.; socializing value of, 136 f., 259.
Habit-building, 40; law of, 17 ff.; importance of, 137; in activities of school life, 258.
HALL, G. S., 6.
Happiness, and social evolution, 113; and conduct, 113; as sanction, 110 ff.
HARRIS, W. T., 213.
HAYWARD, F. H., 105.
HECK, W. H., 200.
HERBART, J. F., 50, 181.
Heredity, and environment, 101; as factor in conduct, 3; of modifications, 11 f.; in royalty, 87 ff., 95; in twins, 92 ff.; in brothers, 90 ff.
High school, curriculum of, 134 f., 145 ff., 153 ff., 202, 204 ff., 207, 212 f., 221 ff., 224f., 228, 235 f., 237 ff.; organization of, 245 ff.; pupil self-government in, 252 ff.; fraternities in, 247 ff.
HINSDALE, B. A., 182.
History, as a school subject, 73, 117, 140 f., 148, 151, 154, 164 ff., 224 ff., 237 f.; as engendering attitudes, 67, 237 f.; as engendering ideals, 164 ff.; utility of, 140 ff.
Household science, as a school subject, 148.
HUEY, E. B., 131.
HUXLEY, T. H., 96, 148.
Hygiene, 143 f., 154.

Ideals, xviii, 53, 54 ff., 74, 118, 136, 152, 156 ff.; compared with ideas, 53, 55 ff.; definition of, 58; and economic efficiency, 156; and emotions, 158; and knowledge, 153; as agents in transfer, 190 ff.; methodology of, 62; and instincts, 56 ff., 158; nature of, 55 ff.; national, 164 f.; utility of, 121; transmission of, 163 ff.; derived from school life, 243 ff.; lists of, 175 ff., 214 f.
Ideas, xviii, 26 ff., 74; definition of, 33; formation of, 41; as conduct-controls, 27; compared with habits, 40 ff.; compared with ideals, 53, 55 f., 57 ff., 157; methodology of, 48 ff.; value of, 139 ff.
Identity, of substance, 186, 193; of procedure, 186, 193; of aim, 193.
Illusions, of youth, 244.
Image, and meaning, 33.
Imageless thought, 35 *n.*
Imagination, constructive, 38; passive, 38.
Imitation, as an instinct, 7; and ideals, 162.
Individualism, fallacies of, 110, 113 f., 259.
Individualistic instincts, 9 ff., 169; and ideals, 159.
Induction, in concept-building, 51 f.; limitations of, 51.
Inductive development lesson, 52.
Initiative, in habit-building, 18, 19; ideals of, 177.
Inspirational functions, 156 ff.; defined, 119.
Instincts, xvii, 3 ff., 104; defined, 4; as controls of conduct, 3 ff.; as basis of habit, 17; and ideals, 56 ff., 158; relation of, to education, 12 f.; adaptive, 5 ff., 13; individualistic, 9 ff., 158 f., 169; sex and parental, 10, 13, 158, 169; social, 10 ff.; in man as compared with animals, 11.
Instruction, spirit of, 202.
Instructional functions, 139 ff.; defined, 119.
Integrity, ideals of, 176.
Intelligence, and conduct, 110 ff.; general, functions of, 230 ff.
Interpretive functions, 229 ff.; defined, 120.

James, W., 182.
Japan, influence of education in, 98; intelligence of soldiers, 132 *n.*
Jennings, H. S., 2.
Jones, E., 10, 103.
Judd, C. H., 66, 67.
Judgment, as process in transfer, 190 ff.
Jung, C. G., 70, 103.

Kant, I., 115, 116.
Kinæsthetic sensations, in perception, 28; in meaning, 32 *n.*
Kinship, as a factor in ideals, 168.
Kirkpatrick, E. A., 6, 7, 132.
Knowledge, xviii, 27; functions of, 68; tentative definition of, 27; utility of, 121, 139 ff.; functions of, 139 ff.; relativity of, 43; as a guide, 153; liberal, functions of, 230 ff.
Kuropatkin, 132.

Langlois, C. V., 141.
Language, habits of, 22; as medium of instruction, 152; as school subject, 123, 133, 140, 145. (*See also* English, Latin, etc.)
Languages, ancient, 211 ff.; modern foreign, 134, 147, 228. (*See also* English, Latin, etc.)
Latin, 123, 135, 211 ff.
Leadership, as determining ideals, 245.
Lessons, types of, 52 f.
Liberal knowledge, functions of, 230 f.
Liberalizing functions, 232 ff.
Lincoln, A., 81, 168.
Literature, 146, 147, 151, 164, 169 ff., 220 ff., 236, 238 ff.
Lloyd, M. A., 148.
Locke, J., 180.
Logical procedure, as ideal, 214.
Love, parental, 175; as ideal, 178.

Manual training, habits in, 21; as school subject, 117, 132, 134, 145, 225.
Marbe, K., 66.
Margin, of consciousness, and meaning, 32 *n.*
Mathematics, 117, 146 f., 151, 187, 190 f., 202, 203, 204, 209 f., 228.

Mayer, A., 31, 66, 101.
McCormack, T. J., 210.
McMurry, C. A., 50.
McMurry, F. M., 50.
Meanings, xviii, 74, 152, 240; definition of, 34; simple, 41; nature of, 31; as conduct-controls, 27 ff.; and ideas, 31; genesis of, 31 f.; kinæsthetic factors in, 32 *n.*
Memory, transfer of, 194 ff., 197; significance of experiments on, 241.
Method, concepts of, 201; importance of, 202.
Methodology, of habits, 17 ff.; of knowledge, 48 ff.; of ideals, 71; of attitudes and prejudices, 62.
Methods, of teaching, 17 ff., 48 ff., 62, 71, 76.
Meumann, E., 194.
Mill, J. S., 82.
Moral law, 116.
Morality, and heredity, 87 ff., 99, 100 *n.*; ideals of, 243 ff.; habits of, 136.
Mueller, G. E., 195, 198.
Music, as a school subject, 131, 145, 171 ff., 220.

Nature study, as a school subject, 226 f.
Negative adjustment, 231 f.
Nervous system, in control of conduct, 2 f.
Newton, I., 96.
Nonsense syllables, experiments with, 194 ff.
Normative *vs.* positive sciences, 118.
Norsworthy, Naomi, 187.
Number arts. (*See* Arithmetic.)

Objective teaching, 50 ff.
Observation, ideals of, 214.
Odin, A., 85.
Oral expression, 130 f.
Organization, value of, 206.
Orth, J., 31, 66, 101.
O'Shea, M. V., 242, 251.

Pain, and conduct, 110 ff.
Parental instincts, 10, 13, 158, 175.
Patriotism, ideals of, 177.
Payot, J., 158.
Pearson, K., 90, 91, 92, 94, 99, 104, 105.
Peary, R. E., 55.
Perception, definition of, 28, 33; meaning in, 30 f.
Perspectives, 24, 68, 74, 229 ff., 244; as control of conduct, 65 ff.; historical, 238.
Philosophy, 236.
Physical geography, as a school subject, 147 ff., 202, 235.
Physics, as a school subject, 42, 123, 147 ff., 187, 202, 235 f.
Physiology, as a school subject, 143 f., 154.
Pillsbury, W. B., 230.
Play, instinct of, 5 ff.; theories of, 6; and ideals, 161.
Pleasure, and conduct, 110 ff., 114; and efficiency, 217 ff.
Popes' adopted sons, 84.
Practical values, 121.
Prejudices, xviii, 24, 74, 136, 153; definition of, 74; nature of, 64 f.; as controls of conduct, 64 f.; and habits, 69.
Preparatory values, 122 f.; of habits, 133; of knowledge, 152.
Principles, xviii; nature of, 47; as conduct-controls, 47, 118, 119 *n.*; utility of, 139 ff.; specialized utility of, 150.
Progress, human, 12; social, 114 ff.
Propensity, 24, 64, 69.
Property, ideals of, 177.
Psycho-analysis, 10, 104.
Psychology, of meaning, 30 ff.; of ideals, 245 f.; of transfer, 183 ff.; as furnishing explanatory principles of function, 118.
Pure science *vs.* applied science, 204 ff., 233.
Purpose, ideals as determining, 59, 153.

Race, primacy of, 112; improvement of, through breeding, 98 *n.*; as criterion of value, 110.
Racial differences, in ideals, 164.
Reading, as a school subject, 130, 131.
Reasoning, ideals of, 202, 208, 214.
Recreative functions, 216 ff.; defined, 120.

Reflex movement, 4.
REIN, W., 50.
Religion, as source of ideals, 172; function of, 173.
Religious Education Association, report on high school morals, 249 *n.*
Religious education, and ideals, 163.
Religious experience, 172.
Repetition, instinct of, 7 f.; in habit building, 18 f.
Reverence, instinctive basis for, 162; ideals of, 163.
Rhetoric, as school subject, 146.
Rome, lessons from history of, 142.
ROUSSEAU, J. J., 9, 20.
ROWE, S. H., 6, 18, 25.
Royalty, heredity in, 87 ff., 95.
RUEDIGER, W. C., 102, 108, 121, 123, 152, 191, 192, 193, 200, 229.
RUGER, H. A., 18, 199, 200, 201.

SADLER, M. E., 243.
School environment, as source of educative materials, 242 ff.
Schools, habit-building in, 137 f.; habits trained in, 128 ff.
Science, pure *vs.* applied, 204 ff., 233; as a school subject, 73, 147 ff., 202, 232, 235 f.
Scientific method, ideals of, 204 ff., 214.
SCOTT, C. A., 242, 253.
Secondary schools, life in English, 242, 245 f. (*See also* High Schools.)
Seignobos, C., 141.
Selection, natural, in human race, 97 f.; in mind, 112.
Self-denial, ideals of, 60.
Self-government, ideals of, 166, 177; in schools, 245 ff., 252 ff., 253 *n.*
Self-reliance, ideals of, 177.
Self-sacrifice, as ideal, 176.
Sensations, as elements of consciousness, 28.
Sex, instincts of, 10, 13, 158, 169; and ideals, 159.
Sexual love, ideals of, 178.
SHOREY, P., 213.
Skill, habits of, 21, 128.
SMITH, H. B., 243.
Social aim of education, xviii, 107 ff., 120.
Social achievement, 114 f.
Social conscience, 112, 126.
Social efficiency, as aim of education, xviii, 107 ff., 120, 235; and ideals, 156 ff.; and enjoyment, 216 ff.; characteristics of, 107.
Social heredity, 14.
Social ostracism, 247 f.
Social stigma, 112.
Socializing values, 126 f.; of habits, 136 ff., 258 f.; of knowledge, 152 f.; of ideals, 156 ff., 180 ff., 242 ff.; of attitudes, 229 ff.; of tastes, 216 ff.
Societies, in high schools, 254 f.
Society, destiny of, 113 ff.
SPEARMAN, C., 91 *n.*, 92.
Spelling, as illustrating habit, 16; as school subject, 124, 228.
SPENCER, H., 5, 50, 141, 143, 144, 148, 181, 216.
Spread of training, 180 ff.
SQUIRE, CARRIE R., 188.
Standards, developed in school life, 250 f.; emotionalized, 74.
STOUT, G. F., 25.
STRAYER, G. D., 63, 102.
Study, training in art of, 150.
Symbols, as focal representatives of concepts, 34; use of, 39 f.
Sympathy, instinctive basis for, 159; as ideal, 176.

TARDE, G., 7.
Tastes, 24, 74, 109; and habits, 69; as conduct-controls, 64 f.
TAYLOR, C. O., 32.
Teacher, as controlling force in school environment, 251; importance of attitude of, 72; qualities of merit in, 102 *n.*
Temperance, 158; physiology as school subject, 144; ideals of, 176.
Ten Commandments, influence of, 173.
Theoretical values, 240 f.
THOMSON, J. A., 99, 100.
THORNDIKE, E. L., 30, 86, 91, 93, 100, 115, 183, 184, 185, 186, 190, 193.
Thought, constructive, 40; imageless, 35 *n.*
TITCHENER, E. B., 31, 32, 66.
Training functions, 128 ff.; defined, 119.

Transfer of training, 180 ff.
Truth, passion for, 160; ideals of, 176.
Twins, studies of, 92 ff.

Universities, utility of language teaching in, 146.
Utilitarian values, 120 ff., 202, 205; of habits, 129 ff.; of knowledge, 139 ff.; of ideals, 156.

Value, criterion of, 107 ff.; contingent, 122; direct, 122.
Values, distinguished from functions, 117 ff.; classification of, 120 ff.; utilitarian, 120 ff., 129 ff., 139 ff., 156; conventional, 123 ff., 135 f., 151; preparatory, 122 f., 133, 152; socializing, 126 f., 136 ff., 258 f., 152 f., 156 ff., 180 ff., 229 ff., 216 ff.
Variation, organic, and genius, 80 ff.; in germ-cells, 89.
Vicarious experience, 152, 167, 170.
Vocational education, 151, 257 f.

War, ideals of, 178.
Ward, L. F., 85, 103, 104.
Washburn, Margaret F., 37.
Welton, J., 243.
Whipple, G. M., 91.
Winch, W. H., 197.
Womanhood, ideals of respect for, 136, 176.
Woods, F. A., 87, 88, 99, 104, 105.
Woodworth, R. S., 31, 183, 187, 190, 195.
Work, capacity for, 83, 100.
Writing, as school subject, 133.

Young, J. W. A., 122, 202.

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